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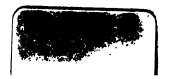
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LANCASHIRE FARMING

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SOME REMARKS

ON

LANCASHIRE FARMING,

AND

ON VARIOUS SUBJECT

CONNECTED WITH THE

AGRICULTURE OF THE COUNTRY:

WITH A FEW SUGGESTIONS

FOR REMEDYING SOME OF ITS DEFECTS.

BY LAW. RAWSTORNE, ESQ.

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INTRODUCTION.

WHE following remarks originated in some desultory ideas, which the Author threw together for the purpose of instituting an Agricultural Library for the use of his-tenants. On entering upon the subject more at large, he found its interest increase with its importance. It then struck him that it might be desirable to bring before the public certain branches of farming management, which materially concerned a large and important part of the community. On a nearer view he became more sensible of the present defective state of Lancashire farming, and how far it was behindhand in the race of agricultural competition now going forward. -He therefore thought it would be of use to point out, in a brief and compendious form, what he considered to be the essentials of all good farming, how far Lancashire farming fell short of these, and what means were to be applied in order to bring it to an equality with

districts more advanced. Should he ever have reason to believe, that he has been instrumental in causing two blades of corn to grow, where one grew before, the object proposed will be fully realized. In directing his attention to existing defects, utility has been his chief motive; and in his endeavours to find a remedy for them, he has given copious extracts from the writings of different authors, which may serve to illustrate his views on different subjects, much better than could have been done by any language of his own. Candour as well as affection induces him to add, that in the execution of this little work, he has been much assisted by one whose acute discernment has aided him in rectifying many of its original errors; by one who has refined his taste and purified his heart; and who has taught him to raise his thoughts from worldly to nobler and better objects.

"From man's low passions to their glorious ends."

Perwortham, August 1st, 1843.

SOME REMARKS

ON

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LANCASHIRE FARMING,

AND ON THE

GENERAL AGRICULTURE OF THE COUNTRY;

WITH A FEW SUCCESTIONS FOR ITS IMPROVEMENT.

A GRICULTURE is an art so venerable from its antiquity amongst the nations of the earth, so interwoven with the best interests of mankind, and so inviting as a rational pursuit, that when we consider its rise and progress with a particular people, and the various uses of its existence, it will seem to us at once strange and inexplicable, that it should have continued so long in a state of abject and despised abandonment, and that so little advancement should have been made, during a lengthened period of inaction and darkness, to raise it to a level commensurate with its great utility and importance. If such an imputation can with justice be thrown on the kingdom at large, still is it more applicable to this county, where no pains had been taken

till lately by the principal landed proprietors or their assistants to rescue it from the degradation which oppressed it; nor to make the most of the advantages to be derived from a soil abundantly fertile, and with ample facilities for enriching and improving it. great a misapplication of the blessings bestowed on man by a bountiful Providence, it may be of use to consider. what the causes are which have led to this inadequate employment of capital and labour in an investment sufficiently remunerative, if properly directed; and having ascertained this point, to endeavour to find out what remedies are to be applied, which may raise it to an elevation suited to the growing wants of a redundant population, and which may enable it to vie in excellence with the more highly cultivated farming districts of this country, and with those of Scotland.

The principal reason why the agriculture of Scotland is so much superior to our own, is owing to the greater attention paid there to the education of the people, by which their wits have been sharpened and invigorated, and their minds better fitted for any undertaking, scientificor practical. It is chiefly from the want of this culture of the mind, that the cultivation of the soil amongst us has either remained much the same as it was many

years age; or has not kept pace with the advencement of the arts in most of the other operations of intellect. To remedy the evils complained of, to expand the opening faculties, to impart useful information, nothing is more likely to avail than to follow the example set us by our thrifty and intelligent northern neighbours, and to enlighten the farming classes through the means of .educational institutions. In Ireland, near Londonderrs. an agricultural school has been established, which is intended not only to prepare and qualify persons of a higher order for filling the situations of factors and land-agents, but but also to fit them for undertaking the common man-Model farms have been formed in agement of farms. mome parts of this country, which are likely to instil new ideas into the minds of the rising generation. But if it she not in the power of an individual to commence a plan mpon a large and expensive scale, yet it is in the power of every considerable landed proprietor to establish a library on his estate for the use of his tenantry, which may contain all the tracts and publications that have appeared on farming subjects of late years, and on the improved cultivation of the land. By these means it is to be hoped that long established prejudices will be removed, and an old-fashioned system of management,

alike injurious to landlord and tenant, be exchanged for one of a more enlightened description, which, when a fair trial has been given it, will prove its own reward.

In the attainment of excellence of any kind the first thing is to know what to do, the next to practice what we know, although hard and persevering labour may go a great way towards the attainment of an object, and large sums expended may contribute to forward it, yet even, though an entire failure may not ensue, the advantage derived will not be so great as it should be. unless proper means are directed to a proper end. is on this account, that it should be well weighed and considered first, what the objects to be aimed at, are, in the improvement of land; and next, what is the best method of carrying them out with the fairest prospect of success, and with the least loss of time, labour, and Now it may be laid down as a standing rule. expense. and as a guide to direct our exertions, that all good farming, the whole of that process, by which bad land is to be converted into good, or land naturally good and productive is to be continued in that state, is comprised in the three following operations of husbandry.

1. To carry off all stagnant and superfluous water by means of judicious draining.—

- 2. To return through the medium of manure the strength and fertility which has been extracted from the land by cropping.—
- 3. To eradicate all noxious weeds, that the strength of the manure may be thrown into the crops and not into the weed.
- 1. Draining is the basis and groundwork of every agricultural improvement. Of this there are two kinds: the one for carrying off spring water from the land: the other surface water. Each of them is distinct in its nature and effects: the first of the two being partial, the other universal. The former is chiefly confined to hilly countries, or at all events to those where there is a considerable variation in the rise and fall of the land: for though water will, under certain circumstances find its own level, yet springs are rarely to be met with. unless there is more elevated ground above them. The principle on which they act is clear. The wet penetrating through the upper lighter soil, and being caught by a more retentive one beneath, will be conveyed along that until it finds an outlet on the side of a declivity, Lodging there it forms a swamp. way of removing this is to cut a trench through the higher part of the swampy place, and thus, the source

sf the spring being reached, its contents are discharged in a new direction. As deep outting is generally, required, and this through a soft spungy stratum, nothing can serve so effectually the uses of a conduit as a hollow drain of atones, which on the top should be filled up with pebbles, gravel, brushwood, turf, or some light material. This will keep the drain open for any number of years, and will give a perfect firmness and solidity to the ground below. The other kind of draining is of a more general character, and it is from the went of it, that so large a part of this kingdom has so long lain in a barren and unprofitable condition. All land. with the exception perhaps of the blowing sands of Norfolk, and some other peculiar soils, such as chalky ones, will be improved by draining, and without it, the common operations of husbandry cannot be carried on with any certainty of success. Crops of corn or grass may, doubtless, be raised by the plentiful application of manure alone, but it is also certain, that an increase of produce by equal means, or the same produce with interior means, namely, with less manure, may be effected, if the land be laid first thoroughly dry, rather than being drenched with stagnant water. As this subject will be treated more in detail in the sequel of

this, it is unnecessary to say more in a generalway at present.

2. But however well the land may be drained, all this will be of little avail unless attention be paid afterwards for renewing it with such manures as are within neach of the occupier. The first rule in making a good dung heap is to let nothing be wasted: Let all such materials be collected as may serve to increase the quantity, to cause it to ferment, and to enrich it in such a manner, as, when used, may contribute to restore the soil to the fertility it possessed before it was cropped. With this view if bog soil or sea slutch be within reasonable distance, these should be carted up in the Summer time, when the teams might else be lying idle. These should be placed at the botton of the farm yard for the dung to lie upon in winter; or they should be formed into a large heap ready to be mixed with lime, or with stable manure, when this has been sufficiently heated and decomposed from its original dry state. Thus the real quantity of this restorative compound will be much augmented, and a valuable compost be obtained, which will go much further towards keeping ahe whole farm both grass and ploughed land in good heart.

3 As to the eradication of weeds common sense points out the advantage and even necessity of removing or destroying these noxious intruders, which often cause more exhaustion of the land than the best crops. and which if allowed to remain and run wild, will much prevent any crop arriving at its proper maturity. One years seed is said to be six years weed.- If the weeds are well rooted up and turned over with the harrow, as soon as they appear, they are easily eradicated, but if allowed to get a-head, and particularly to seed, the labour required to get rid of them again is immense, double or treble, what it would otherwise have been-Mr. Coke, of Norfolk, afterwards Earl of Leicester, (to whom the agriculture of the country is perhaps more indebted than to any other person) having visited the celebrated Mr. Rosere, and being asked what he thought of Lancashire farming, that he had not seen any clean farming. Now if anything can describe our style of farming it is precisely this—The potatoe culture has all along been excellent; but with this exception no attempt had been made to use the drill husbandry, until this method was applied to the turnip crop to a large extent, which is quite a late introduction, and is a great improvement.

It was not uncommon to grow what were called blendings, which were a compound of a few beans, a sprink. lings of peas, more vetches, still more weeds, and all sorts of rubbish: Farmers, who have no lengthened or certain interest in their possessions, want forethought: they only look to present advantage, and therefore will not give themselves the trouble or expense to do what is only to bring in a return at a more distant period. But if a tenant has a sufficiently long term in his farm, he should lay out his money in good time, so that in the end he may reap the fruits of his labours. He would then see that by growing the crop broad cost. he might possibly raise as heavy a bulk of some sort of produce, as if he had adopted the drill system, but he would likewise find that by doing so, he would make his land foul, and thus injure it for a succeeding year. By the crop being in drills, the sun and the air would penetrate more freely; it would be brought forward to a better growth from its receiving the benefit of the whole strength if the manure; and by its being put at the top of the ridge it would be kept comparatively dry, even if the land were not drained, as by all means it should be. Further, by the ground being well stirred and earthed up with the drill plough, it would be kept

perfectly clean; the crop thus grown would become what is called an ameliorating crop; and it would be used as a substitute for a fallow. In really good clear farming there should be no occasion for a fallow; or if at all, it should be had recourse to only about once in seven years. Land under any management is liable to become dirty; and then it is perhaps the easiest and cheapest mode of cleaning it again to begin with a fallow, and to follow with a regular rotation of crops. In this country however we have not yet approached so near to perfection, as to be able to do without a fallow; and, as it may take some time before we recover from the evils of former mismanagement, it will probably long continue an inherent part of our system.

Any one who has visited with careful observation the more improved agricultural districts, for example the Lothians, will not fail to remark the wonderful difference there is between their farming and our own—as if nature had been less lavish in her gifts to us than to them; whereas the reverse may perhaps be said to be the case; and it will then appear that man has marred her work by improvident treatment of the advantages thrown in his way. In the country just named, the whole system is artificial, all the land being under the

pleugh. Those, who have given this method a fair ttial; find it by far the most profitable, but it requires great knowledge, activity and capital to carry it out so as to render it really efficacious The late Mr. Curwen, President to the Workington Agricultural Society, a very able agriculturist, states in a small tract of his, that he would from choice have no land under natural grasses except water meadow, which he values, if well done, worth about £10 per acre. Every one will admit the superior value of artificial grasses, who has made a fair trial of the difference between feeding catthe upon them cut green and given within doors, and on the other hand in turning cattle out upon a common pasture. A trial of this kind was once made in Scotland and it was found that 27 head of cattle were as well kept upon the same quantity of ground in one method as 18 in the other. Added to this, there is an immense saving in the making of manure, which process, the most important one of any, may be going on during the whole Summer, instead of having what dung falls, scattered abroad, and dried up in the heat of the •sun.

If we want a further proof of the superior advantages of this system, we need only look to the much higher

rents that are paid in Scotland than with us. There is a farm of Earl Grey's, near Coldstream, of 1000 acres, which pays a rent of £3000 a year. This is done without its possessing any particular local conveniences. but only from its being good rich land under a high state of cultivation. - What the Scotch say of our farming is very true, that they only grow one crop at a time: but that we are not satisfied with that, we must need grow two, corn and weeds. When one sees a whole. district husbanded in the manner already mentioned. kept perfectly clean, and in as good order as a nursery garden, one can easily understand how such things are; how it happens that a tenant pays a much higher rent, lives in a more expensive style, and yet is able to do this without injuring himself; the reason is plain—that he is a man of good education, with all the intelligence that springs from it; and because after examining a variety of systems, with all prejudices dismissed from his mind, he gives the preference to that which the nature of the soil requires, and different circumstances point out as most desirable; and further he takes the best means of carrying it into execution. Through the medium of education the minds of our farming classes would be equally opened and enlarged:

and they would then be taught how to grow rich, instead of their being impoverished, as is now too frequently the case, by the ruinous system carried on. There is no doubt a good capital required for conducting any exten-Such capital must in many sive plan of farming. instances commence from small beginnings, and continue to increase until it becomes proportionate to the calls likely to be made upon it-on the contrary if a farm goes on deteriorating year after year, the profit to be reaped from it will necessarily go on diminishing, and the means of paying rent be diminished also; and capital be thereby reduced, until in the end there is nothing left for supplying deficiencies, but to break into the stock-when that last resource is resorted to, ruin and distress are not far distant. This shows that it is only by progressing continually in his improvements that a farmer can proceed successfully, and carry out any systematic scheme of operations which is likely to answer either to himself or his landlord.

A small publication by Mr. R. H. Gregg, has lately attracted a good deal of notice, chiefly from its telling some home truths, important to English farmers, and still more important to English landed proprietors. This shows the wretched condition of farming in this country.

and how much inferior it is to that in Scotland. he states, "the general conviction upon my mind is, that with a system equal to that of the Lothians, established throughout England, landlords might receive double rents, farmers be rich and prosperous, and the country be rendered, for two generations, independent of foreign supplies, notwithstanding an abolition of all protective duties.—I am confident the agricultural produce of England. Wales and the west of Scotland, might be doubled; and that of Lancashire and Cheshire tripled, and this without any material addition to the population." If this statement were confined to mere vague assertion it might have little weight, but when it is accompanied with indisputable facts, it is deserving the most serious consideration of every individual possessing a single acre of land in the country. Mr. Gregg then gives some extracts from his notes respecting rents paid—No. 7. 500 acres the Scotch acre being one fourth larger than the English statute acre—rent £1750: seven miles from Edinburgh too far from town to benefit; and a stiffer quality of landless potatoes and turnips, but very fine beans.—Best manure, half rape, half dung; only good when used with dung, buys whole cargoes of dung. No. 9. 300 to 350 acres: 25 miles from Edinburgh: rent about £1200

70 acres in which about 51 quarters to the acre, and exactly equal over every inch of the field.—The farm nearly without a fence, and almost every yard in the highest state of cultivation.-Procures a good deal of manure from sea weed, being not far from the shore." Let this be compared with the average rental in this county, and will. any one say that, with the exception of those places which possess some particular local advantages, this exceeds 30s: per acre statute. But the greatest part is infinitely below that, some that will do little more than pay poor-rates at their present exorbitant amount. From what then can this extraordinary difference arise, but from a total want of a good system, and of every requisite that is to turn the capabilities of a good soil to the greatest advantage? wehave just seen that 51 quarters of wheat are grown per acre in Scotland. With us not more than about half that quantity would be considered a fair crop. As to the grass land, go through the whole county, and there perhaps is not to be found a really good grass field in any part of it; such as are to be seen in the beautiful richpastures, that delight the graziers eye, as he passes along the road from Leicester to Harborough. There the grazing system has been long carried on and brought to per-Most of the land is in grass, as is well known to fection.

those, who have ridden over it after hounds. A run with these is on record, called the Stockerston run, perhaps the best ever run in Leicestershire, was 15 miles from point to point, as the crow flies and scarcely off a grass field.

If any one is not convinced from the statements already produced, of the immense superiority of the farming system in the countries named, to what it is with us. let him, dismissing all prejudices from his mind, examine fairly and impartially the condition of the land, as he travels by railway from London northwards—on the southward side he can scarcely see such a thing as a bad field. He beholds the ground lying in grass. without the appearance of a rush upon it, herbage rich and luxuriant, and verdant in winter as well as summer: with large flocks of sheep, and fine bullocks feeding off, frequently for Smithfield; the hedges neatly plashed and trimmed; and every thing giving the idea of order and prosperity. He then examines the ploughed ground, and he perhaps sees a still greater contrast: he sees the buts, or as they are called there, the lands, drilled across not only for the green crops, but for the white crops also, no water lying in the reins, as they are called; no weeds to be seen, as these are kept under by the drill plough. What is the

scene exhibited as he travels further? The corn crops look scanty, backward, and half starved; the grass land, much of it, as it were totally abondoned. The whole country seems as if it was running wild with neglect and impoverishment; all attempts at neatness disregarded; no sign of the higher order of cultivation being any where visible.

Such being the case, it may be fair to ask, why is Lancashire farming so much inferior to most other in the kingdom? It possesses, generally speaking, an excellent soil; the marshes, which are an alluvial collection, are rich to a degree; these are capable of producing the finest wheat, and at the same time, being of great depth and of a rich loam, of bringing to perfection turnips, potatoes, clover, manglewurzel, and even earrots. In some places sea slutch is near at hand to help to form a valuable compost which even by itself is an admirable component for improveing a summer fallow: in others there is bog soil. which after lying some time, and particularly if acted upon by a sharp frost, it be then mixed with one-third of lime or farm yard dung, according to the plan recommended by Lord Meadowbank, in Mr. Steel's book on Peat Moss, will enrich and sweeten the grass

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erops, and bring to better bulk and growth those under the plough. Added to this there are numerous Agricultural Institutions in different parts of the country, and great pains have been taken, in promoting farming knowledge, by men of intelligence, who no doubt have done much, but who have still left much to be done before we can place ourselves on an equality with other more advanced districts.

The solution of the question is not difficult, if we consider that we possess chiefly a manufacturing population, and that the direction, which has thus been given them, has not only diverted their minds from the improved management of the land, but that it has also been attended with various circumstances highly unfavourable to it. At the time when weaving was at its tip-top price, it was introduced into the different farm houses, when all other considerations gave way to it. A good hand-loom weaver would then earn his 30s, a week or even more: he would perhaps work one-half the week and drink the remainder. Farms by these means became subdivided; cottages were built; a large shop was attached to every building. The houses both of the farmers and cottagers were occupied by as large families as could be procured, and

these paid an enormous rent from the profits of the loom. Along with this was combined another cause. which acted most injuriously. The immense rise of corn owing to the war-wheat selling at 120 shillings the quarter-created great speculation in the production of that article. The best land in the farm was sacrificed to a temporary good; often the richest grass field in it was converted into an arable state to fill the pocktes of a greedy and short-sighted husbandman. Peace came, and with it a sudden and unexpected change. Prices dropped-landlords would not consent to lower their rents-tenants could not pay, and consequently fell into an arrear, which went on accumulating. They could not quit, or they must have sacrificed all they were worth—the sale even of their stock could not have redeemed them and made up the deficiency. The only alternative left was to spin out a lengthened existence by a further improverishment of the estate, and as poverty is said to beget poverty, so a poor farmer will in a few short years make his farm as poor as himself. The productive powers of vegetation on his land were now found completely exhausted. Then was sunk deep the abyse of all bad husbandry opening wide its devouring jaws-nature had denied the blessing of a corn crop.—The abandonment of the soil was become the last resourse of a worn-out expedient. A dereliction of all previous improvement had been compelled by hard necessity—fields were to be seen fertile in thistles, but withering under a scorching sun with scarce the remblance of a good grass root.

There was once a custom peculiar to this country. and still it is believed prevailing in certain parts of it, which served to effect a great mischief.—This was what was called letting farms by ticket. The excitement usual on such occasions, where numerous competitors entered the field to attain a desired object, was still further increased by copious potations of stimulating liquors with a large infusion of ardent spirits. The offers made, being written on a slip of loose paper, and not publicly announced, were kept a profound secret; the different antagonists went on bidding against each other; and, as three chances were given to each, they often bid against themselves—The successful candidate was then declared, frequently at a figure out of all reason, and far beyond the fair value of the farm.-It is as bad letting farms above their value as below it, or perhaps even worse. Every individual has a fair right to demand that all the toils he has endured, all the capital he has sunk, all the knowledge he has acquired, should be carried to a profitable market, and not be at a discount. But setting these matters aside, the interest of the landlord and the tenant is one and inseparable.—There can be no reason why the latter should improve the poor land belonging to the other at his own sole expense.—If he is to do it at all, it is only just that he should have a suitable remuneration for what he lays out—further, it would be folly to expect that he would carry on his undertakings with any degree of spirit, if he knew that he was only labouring for his own dead loss or perhaps certain destruction.

In former times marling was much in use. This practice was admirable in itself. It afforded a rich unctuous sort of substance, that would fertilize any soil, and particularly strengthen a weak one.—Although it made an unseemly hole in a field, and was often objectionable from keeping it wet, yet the material being close at hand, the expense at which it was done, was moderate. The failure in the system lay in the abuse of it. Some additional rent was not unfrequently demanded, or an old deficiency had to be supplied.—To effect this a privilege was required. This privilege was generally nothing less than the breaking up of

some old rich pasture, or of the best meadow on the farm, which, if wanted to be laid down again to grass, would not attain the same sward as before, perhaps for half a century. This being marled at the expense of the tenant, he had to squeeze all he could out of the unfortunate field. Thus he went on ploughing and ploughing it again for successive white crops, so long as it was able to bear one. When this at last failed, then the once fertile field lay for ages an inert sterile mass, with all its virtue extracted, with a few scanty grasses springing up spontaneously, an apology for them rather than a reality; left to nature rather than art: the art being to destroy, nature to restore. Of all the causes that have led to the deterioration and complete exhaustion of whole districts, this is perhaps the greatest. Traces of this miserable system are visible in every direction, and this it is which makes a great part of the country offer still a deplorable picture of poverty and wretchedness.

There is another fault very common in this country, which has done the greatest mischief, that is, of letting the stock range abroad in the fields the whole winter, generally in the pastures and sometimes even in the meadows. The effects of this are most injurious: the

comfort and appearance of a farm are much affected by it and still more its cultivation. The gateways are so tradden that they are almost impassable: the fields get so thoroughly posched, that they offer a most unevensurface, and as, wherever the footmarks of the cattle. are made, there water will lodge, vegetation is choaked and destroyed, and rushes generated. The cattle themselves though they cannot tell their own dismal tale. show very significantly by their miserable looks that they do not at all relish this exposure to wet and cold: and by their standing up to their knees in filth and slutch, they must be gradually losing condition, which it will take many weeks of good keep in a rich spring pasture to recover. If likewise the opinion be true that the first thing to be attended to in all good farming is the making of manure, this is the way of all others to prevent it.—It would doubtless be a great advantage, could we imitate the better farming of some other countries, in this respect, where even in the summer the cattle are confined, or nearly so, within the buildings. In Scotland as before mentioned, where they have nonatural pastures, the clover and other artificial grasses are cut and carried for use into the farm yards. this plan being continued the whole year round, and with the help of a large number of pigs running loose and rooting amongst the dung, the quantity of manure made, far exceeds any thing known with us, who generally speaking, rather throw away our advantages than make the most of them.

Some of the causes of the low state of farming knowledge in Lancashire having been mentioned, it may be of use to consider what means should be taken to remedy the evil, and how far all those improved methods which modern science has brought to light, and of which experience has proved the utility, may be applicable to the circumstances of that part of the country.— In doing this we should take into the account the character and condition of the farming classes, and see how far they are competent to carry such a system into execution, either as it relates to themselves, or the locality in which they are placed.

It has already been stated that the Scotch arable system is more calculated for a district exclusively agricultural, than for one where the payment of rent depended jointly on the land and the loom; and where an artificial value is given to certain commodities owing to a dense population.—Yet there are certain parts of this system which may be rendered available, and which

indeed have been already introduced amongst us with the best possible effect.

The first thing should be invariably to adhere to a rotation of crops on land under the plough. - This which has long been the custom in other good farming countries has now been common with us for some time. all new leases it is now generally specified that two successive white crops should never be taken. rule with us is usually a four course system-wheat often after fallow, clover, oats, and green crop in drills. By this means, if proper attention be paid to the manuer in which the work is performed, the land may be kept perfectly clean and the exhaustion which would ensue -from injudicious cropping would be avoided; as an ameliorating crop would intervene betwixt each of the two crops of corn. In Nottinghamshire the usual course is to have oats or barley after fallow, then seeds, which are sure to do well after the former, rather than after wheat (this is never done here but is considered an excellent plan), then green crop-white crop-and so fallow again. It should be recollected that the clover or grasses may lie either one, two, or three years, if the land be in good heart. If when these are ploughed up, they are collected in heaps and have a little lime

mixed with them, and be then spread upon the ground, they will serve as an excellent preparative for the succeeding white crop, particularly if it be wheat.

In the whole province of farming there can be no greater mistake than in having more land under the plough than can be properly managed. Grow good crops of corn or none at all. This should be well remembered. Mr. Curwen states, that it will not pay to grow wheat, unless there be twenty-six bushels per acre. But in some of our stiff worn out clays not half that quantity is grown; which must be attended with a certain loss, and is one great cause of rents having been long ill paid, of the farmer starving he knows not why, and of his being poor amidst apparent abundance. He goes to market with his well filled sacks, and in return for his corn he brings back some shiming .coin, and at once fancies himself a rich man. But alas! how little does this class of persons consider the fair debtor and creditor account of the question. Let any one make a fair calculation of the expense per acre of growing his crop; if after fallow, of his two years rent; his taxes; so many ploughings and harrowings; his seed; besides his other outgoings, such as loss of time from bad weather and unavoidable impediments-he

would soon find to his cost that his different expenses, to say nothing of his expenditure in capital and labour, would far exceed any profit he might reap from it-Yet notwithstanding this, although proved to demonstration, that such be the case, so wedded are these people to their old systems, so blind to their own interests, so difficult to be convinced of their errors, that there is scarcely one, who would willingly consent to reduce the quantity of his ploughed ground, but would rather go on breaking up fresh land and adding still further to the evils from which he is suffering, though attended with evident loss and disadvantage to himself, and ultimately leading to the total impoverishment and ruin of the farm. Hence the land, from being only half cultivated, is not in a fit state to encourage the spread of different roots, or to promote the growth of the plants after they have appeared above ground. If it happens to be a bad season and much rain falls at the latter end, the crop is only half ripened, and it is so late that it is not harvested in any reasonable time, nor when thrashed out, will it yield, half it should do, either in weight or quality.

To every farm whether great or small, there is a certain proportion of arable land required. It is clear

there can be no great improvement going on unless a team be kept. It will never answer to let this team stand idle—no, not for a single day, if it be possible. If it be left doing nothing, as is too often the case in winter months, or in hay or shearing time, the horses, as they say, will soon eat their heads off. Some bad farmers imagine that by reducing the extent of their ploughed ground, they will not find sufficient emplayment for their teams; but let them learn to expend the same labour on one acre, they did before on two. Let them grow two bushels of wheat where one was grown before. Where one cow was kept. let them learn to keep two. If this be done, which is certainly very practicable, it will be found that there will be an immense saving in a variety of ways; because if land be once brought into a rich, clean, friable condition, it is both easy and cheap to keep it in that state. But if this plan will not find work for his teams, let him cart up materials for compost to be laid on his grass land, which is sure to bring in an adequate return. -Let it however be first considered, before he complains of the want of work, and has recourse to other things, what is required for the ploughed land to be managed as it should be, not as it is. - Fallows should

never be neglected, yet how often do we see weeds luxuriating in them in abundance, exhausting the soil almost as much as a crop of a really good and valuable kind—nay, it is not unusual in this state, (of all others most to be avoided,) actually to see compost laid upon the fallow, which can only serve to make the weeds grow so much the faster. Here let it be observed, that if the fallows are once made perfectly clean (and unless this be done it is better to be without them) if the weeds are killed as soon as they make their appearance, if the large lumpy pieces are first cross-cut and well stirred with a heavy plough, and then are properly broken and pulverized with the harrow and roller, there will be much more to be done than is generally imagined.

Although the arable system, if it be thoroughly understood and well executed, will perhaps produce a heavier crop, and give a greater profit, than can be obtained from grass land; yet in the present state of our farming knowledge, we can scarcely expect to receive advantage from it when we consider that it requires a combination of skill, labour and capital such as our farmers do not generally possess. Situated as we are in the neighbourhood of a large and increasing town,

where there must be a constant demand for milk and butter, the sort of farming required must be necessarily somewhat guided by our proximity to it. It is very clear that if the whole land be under the plough, as has been described is the case in Scotland, a great proportion of it must be appropriated to corn crops. When wheat is selling at the low price it does at present. with the prospect of a still further reduction, it would be injudicious to forego the advantages of a neighbouring locality for the sake of producing an article, which is likely to bring in so poor a return.—The only wise maxim here is for the farmer to render himself independent of foreign markets, and to look to the home one. A proper attention to his grass land should in this case be his primary consideration. This, which seems to be a course so natural, so easy, so profitable that one would think it could scarcely be avoided, has unfortunately been too little thought of and too long neglected.

In former days it was considered quite unnecessary to sow any variety of well selected grass seeds in laying land down to grass. The most that was attempted to be done, and even that was not invariably the case, was to scatter abroad a few hay seeds, these having been

picked up at random, and often doing more harm than good by the noxious weeds they generated along with them. It is very true that the seeds of vegetation are so indigenous in all soils, even on the sands, apparently so barren, which have been collected, as alluvial depositions, that after a short period grasses will spring up, which grasses eventually are more adapted to the peculiar nature of a particular soil than any other whick art can produce.—Artificial grasses, however judiciously chosen, although they bear a heavier crop in their early growth, yet it cannot be denied, that they are apt to languish, and die away after a few years, and then give place to those which, by nature are of a more congenial kind. This being admitted, there is still a great advantage gained from the increased produce they yield, so long as they continue to flourish; and the good arising from them is not less important, as it cannot be shown that the natural grasses, which succeed them, will be at all deteriorated by the other having previously occurried their place; but on the contrary by the blending of the two, they will materially assist each other, and banish those of a hurtful description.

In the selection of seeds it is impossible to specify

the exact sorts, which are best adapted to each particular kind of soil. On a light or black soil the following assortment may be found useful:

From 12 to 15 lbs. per acre,

White Clover.

Trefoil.

Timothy.

Cow Grass.

From 11 to 11 bushels per acre,

Cock's Foot.

Meadow Foxtail.

Meadow Fescue.

Perennial Ryegrass.

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Italian Ryegrass.

This mixture will cost from about 17s. to 21s. per acre, according as the price may vary in different years.

The following mixture for a hazle loom will cost from 30s. to 35s. per acre:

From 2 to 21 bushels per acre,

Italian Ryegrass.

Meadow Foxtail.

Pacy Perennial Ryegrass.

Hard Fescue.

Rough Cock's Foot.

Tall Oatgrass.

From 14 to 16 lbs. per acre,

Sweet Scented Vernail

Crested Dogstail.

Grass.

Poa Trioralis.

White Clover.

Poa Pratensis.

Cow Grass.

Trefoil.

Timothy Grass,

Ribgrass.

Land laid down in proper form with the grasses just named will be worth at least double what the common pastures are in general in this county. These grasses not only give an increased growth, but are of a richer and sweeter quality, and what is most material they flourish at an earlier period of the year, when food for stock is the scarcest, and therefore most valuable. On this account they are of great use for sheep, and particularly for ewes and lambs in the spring months.

As a proof of the value of the improved grasses an instance may be mentioned of a field of 4A. 2R. 23P. statute measure, of thin, poor, black land, which had been much impoverished by ploughing, and would not have been worth more than about 25s. per acre for rent; on which the following profit was made the first year after being laid down in good order with proper grasses.

Twelve lambing ewes were bought in March at 15s. each and were disposed of as follows:—

each and were disposed of as follows:—			
13 Lambs and 1 Ewe, sold in July at	£.	s.	đ.
21s. each	14	14	0
10 Ewes in September sold at 20s. each	10	0	0
3 young Horses to pasture, from 5 to 6			
weeks, in June and July	3	5	0
7 young Cattle, in October	0	15	0
Profit	£28	14	$\overline{}$

	£.	9.	d.
Profit brought forward	28	14	0
Deduct for 12 Ewes bought at			
16s. each 9 12 0			
Former value for rent at £1 5s.			
per acre 5 4 0			
Taxes 3s. per acre, or for			
4A. 2R. 28P 0 13 9-	– 15	9	9
Clear profit above rent	£13	4	3

Sheep have never been considered with us as profitable, and as it is generally supposed that they will not answer, this sort of stock has never been much enconraged; but it may be questioned whether the opinion is not an erroneous one. From the nature of our stiff retentive soil in a great part of the county it would seem as though this were never intended for a sheep country.—The keeping of sheep, if conducted on a large scale, will not answer unless the soil be of a light dry quality.—It requires well plashed hedges to keep them in bounds, and a knowledge in the purchase and management of this kind of stock, which can only be attained by long experience. When the turnips cannot

be consumed on the ground from its lying too wet and clavey, much of the advantage of having sheep is lost, and much of their dung be wasted, when scattered abroad in the open fields.—Where the land is sufficiently dry to have them penned, this method is perhaps of all others the best as a preparation for a succeeding The Leicesters certainly will not do well, unless the ground be thoroughly drained-without this being done, they will be liable to the rot, and also will not thrive. Other kinds, such as the Scotch black-faced breed, or the Cheviot are more hardy, and though their wool is of a much less value than the Leicesters, indeed scarcely worth the shearing, yet these, if not kept as a permanent, but rather as a sort of flying stock, may succeed well and bring a most excellent return, as has been shown for sale, or for home consumption. latter case the meat would be laid in at a much less price, and be of much better flavour, than what would commonly be bought in the market, which, particularly in the spring months, is apt to be coarse and strong. Some Scotch wethers, four years old, were purchased at twenty shillings a piece in October; and being turned into some good fresh grasses, were killed off according as they were wanted. They weighed from 13 to 16lbs.

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the quarter, when killed. This brought the mutton to about threepence per lb.; whereas the market price was sixpence. It is a mistake to suppose that sheep, kept during the summer time, cannot be governed. All depends upon the food given them.—If that be sufficient in quantity and good in quality, they will remain perfectly content, almost in an open space of ground, or with bad fences.

* Irrigation is an important part of farming

"The quantity of irrigated ground is 300 acres. £. s. d.
The expenditure in levelling, draining, sluices, &c.. 39,297 1 1

Value per acre..... 11 4 0

Which would give a total annual value...... 3,660 0 0

They are farmed in the following manner:—Early in January, Southdown swes, with lambs bred early for this purpose, are turned on the meadows. In this early season they are assisted with cabbages * This continues in some parts till late in May, when the lambs at that early season are sold at from 24 to 30s, each. The land is then shut up. Some at the beginning of April; other portions later, in rotation. The most forward meadows will be ready for cutting green by about the middle of May, and will yield from 10 to 20 good cart-loads of green fodder per acre, which is carried to cattle in yards. In about six weeks a second crop is ready which, with the allowance of time necessary to clear the first

^{*} Since the above was written the author has read the article in the Royal Agricultural Society by J. E. Denison Esq., on the Clipstone water meadows.—In these the work has been executed on scientific principles, and on a much larger scale than any known in other parts of the kingdom. Where the advantages to be derived are so great, it may be useful to direct attention to the leading points of a process which has been so fully detailed.

management. The importance of it consists not only in its being made eapable of bringing a greater

crop from the ground, and to apply the water, will carry this second cutting to the middle of July—after this an eddish will be left to be eaten by the sheep and cattle in the Autumn and early winter. The meadows which are first cut will frequently allow of a third cutting of green food, but the eddish in that case will of course be of less value * * Some portions are allowed to stand for hay, and are mown after having been stacked late, early in July, yielding two tons in the acre, and leaving, as in the other case, an eddish for the early winter:

The meadows were formed out of land in two different and most opposite states, the dry hill side and the swampy valley. The process pursued on the hill sides, the soil of which is a poor sand, was first to stub the gorse upon and burn the heather. The ground was then ploughed and followed by turnips. The turnips were eaten off by sheep, and the first process of rough levelling was then done by the spade. To lay the land in its present form of even and gradual slopes, hillocks were cut away, to the depth of 5 and 7 feet, by the spade, and carried in barrows to supply adjoining deficiencies. Then followed a crop of eats, and a second crop of turnips; after which the final and perfect levelling was completed. But when the water was first thrown over the ground, new and unforseen difficulties had to be provided against. The slapes were found in some places to be too steep; in some, too flat. The result of long experience seems to show that the heat inclination is a fall of 10 feet in 90-when the land is laid in this alone the grass is observed always to be the most forward, and to grow the greatest bulk-very flat parts will not answer, though tried in valleys near the river, where the land is naturally of the best qualty. The water does not get over quick enough, and the land is consequantly starved.

In moving earth too great pains cannot be taken to preserve the good sail on the top * * *

After the second coop of turnips, and perfect levelling, the land was sown down in the month of April with hay-seeds, collected from Derbyproduce on grass land, than can be obtained in any other way; but likewise in effecting it without the aid

shire meadows; 3 quarters of hay-seeds, 10 lbs of white clover, and 3 lbs of rib grass to the acre. As soon as the seeds were strong enough to bear watering (and this varies with their growth from one month to six, according to the weather,) the water was turned over them. The water was kept going over for about four days, and then taken off. The seeds were mown as soon as they were ready, and the water again turned over. The same process is observed with the established turf. The water is turned on for three or four days at a time, at the intervals of about a month or six weeks. according to the supply, and this throughout the year, through the heats of summer, and the snows of winter.-When the supply is abundant in the winter, spring and autumn, it is sometimes turned on in succession more frequently than once a month. The time of keeping on the water casnnot, however, be determined by any strict rule; so much depends on the state of the atmosphere and the condition of the ground: Mr. R. Tebbett, the son of the original engineer, likes to keep the water on till he can perceive that it has produced an effect, and then to turn it off.

The quality of the water is very important: soft water is the best; mineral waters and waters from peat mosses and bogs are found injurious.—
After strong rains the washings of the streets and sewers of Mansfield, which discharge themselves into the maun, give great additional efficacy to the water. Mr. Tebbett compares its virtues in that state to ale; when in its ordinary condition, it would not deserve a better name than that of small beer. It will sometimes deposit a sediment in one watering of the thickness of a sheet of paper.

In the management of the crops of grass, experience has shewn that to let the grass grow to be too old, viz., until the seed of it is in a forward state—is productive of very great injury to the land—when the grass has been cut for hay in this state, and brown at bottom, the land does not recover for a great length of time. It is also found very desirable, after beginning any meadow, or portion of a meadow, which secures the water from one corner, and at one time, that the consumption of it in a green

of manure.—Yet, nethwithetanding, it is little thought of, ill understood, and still worse executed. Mr. Curwen, as we we have already seen, places its value at £10 per acre. It is very probably that it may not only give a clear profit to that amount, if properly

state should be carried on as quietly as possible, so that in dry weather the water may not be kept off too long, for in that case it requires so much water before the land is saturated, and will allow the water to flow evenly over it, that much loss of time occurs in the neat crop of grass.

A long course of experiments has demonstrated the necessity of effecting a complete drainage of the bottom water * It is not uncommonly held by persons conversant with draining, that if the land is well filled with shallow drains, so that no top water can lodge, and that all bottom water, which should rise to the level of these drains, should also be carried off, that all, that is necessary, has been done. But if instead of shallow drains at 20 inches, the case should be put if land well filled with drains at 5 feet deep, it would be doubted by few that such land would certainly be secured from all the bad effects of bottom water. But this is by no means the case.—Spring water, pressing upon land, should in all eases, be cut off.

The drains in the boggy lands lie about 12 feet deep; in some instances considerably deeper. Too great care cannot be taken, never to carry their deep drains within a very considerable distance of trees; their roots seem to be attracted in a wonderful manner by the moisture of the drains, and if they once find their way into the tiles, they throw out bunches of fibres, which soon mat together and stop the drains.

There remains a topic of extreme difficulty, viz: the liability of sheep fed in these meadows at certain seasons to take the rot—on this subject, though the greatest pains have been taken to arrive at something like certainty, the results are so at variance one with another, the experiments so contradictory, that no certain conclusion can be deduced from them.

managed; but what renders it still more valuable, it leaves the manure from the farm yard disposable for the ploughed ground; and thus is the means of improving that, as well as the land which is in grass. If any one wishes to see it carried to perfection, he should visit the Duke of Portland's farm at Clipstone, near Welbeck, which would fully repay him for his trouble, both from the amusement it would afford, and the knowledge he might acquire of the principles upon which it is per-The whole of it is an artificial creation.—The greater part of it was a morass, useless, and unprofitable, until by the scientific labours of Mr. Tebbetts, it was applied to the uses of irrigation. The first thing was the formation of the land into such a regular easy declivity, that the water might trickle over it, without either resting too long upon it, or passing over it too quickly. Toeffect this, hollow places were filled up six feet in depth, and the soil removed from a considerable distance. Some of the land, thus formed, has been said to have cost £200 per acre.—After the formation of the land the first step was to drain it: and here deeper draining was required than in most other cases. should be allowed to lodge under the surface, as it should be rendered perfectly dry both above and

below.—The ground will then have to be well worked, richly manured with a green crop, and laid down with suitable grasses, which may be procured from Mr. Gibbs, Seedsman, in London. One great expense in the work at Chipstone has been to obtain a sufficient supply of water. For this purpose a considerable stream has been conveyed from Mansfield, (about eight miles distant) and has been carried across vallies and inequalities of ground, which has occasioned the necessity for a good deal of masonry. The water is brought upon the land through sluices with sliding doors in them, which can be opened or closed as required. to which it is applied are these; in the spring and before the other grasses have appeared, when consequently there is a scarcity of food, the early ewes and lambs are put upon the ground. After the grass is quite eaten off, another growth is obtained by fresh water being introduced, which operation is continued until it is time to prepare for the first cutting of hay grass. In the beginning of June the first crop of hay is taken, and a similar process being renewed, a second afterwards. The land may then be further used for fattening stock. Some objections have been made to irrigation from its being supposed to cause the rot in sheep, but this prob-

ably arises from the work not being properly executed This will not be the case, if the land be thoroughly drained, and the water be not allowed to stagnate upon it. Others again object to it, because the hay from it is not so good. But without assigning Mr. Packwood's excuse for his bad razors, it will be admitted; that hay from it, though good for horses and young stock, is not equally so for feeding or milch cows. A large supply of water is certainly required, to irrigate effectually; but it is surprising how streams may be collected in different directions to answer the purpose. Let it be recollected what has been done at Lord Hatherton's, at Teddesley, " where the water which gushes out of the under ground drains, is thrown over a water wheel, thrashes the corn, and does the other work of the barn." (Royal Agricultural Society, v. iii., p. 170). A hilly country certainly affords greater opportunity of obtaining the command of water than a flat one, but there is scarcely any, that will not give a sufficient supply, which may be turned togood account, though it may not enable the undertaker to rival the ingenious but expensive performances of Clipstone.

There is another operation connected with the laying down of land to grass, which is perhaps the most im-

portant of all, that is, the proper formation of the buts. These should not be raised too high in the middle, or there would be danger of the lower parts being robbed. of the better soil, and thus a large space being left on each side of the furrow almost valueless. art is to have the buts formed with a gentle but regular curve from the top to the bottom. The water that falls on the summit is thus easily conveyed on the surface into the drain on the furrow, instead of soaking further into the ground, or spreading itself on each side. Unless great attention be paid to the mode of their formation, it will be found that the work will be imperfectly executed, as there is a greater difficulty in it than is generally imagined. It is too often observed that a hollow is left betwixt the ridge and the furrow. Here the water is held and cannot escape further downwards. The fault lies in the manner of ploughing the ground, and in gathering it too high on the ridge at the first turn of the plough. There is then a want of sufficient soil to carry on the fall regularly to the more distant point. If regularity be not obtained in this formation, draining will be nearly useless, as it will be found on trial that all parts will not be laid equally dry. The same process is as applicable to ploughed land, as it is to

Although some late fashionable theories have brought into repute a system of under-draining, which is quite at variance with what has been long practised in some of the best farming districts, yet it may be still doubted, whether if in the ploughed land the same formation of the buts be adhered to, as in the other, and the buts be furrow drained, the crop, if drilled across them, will not be more effectually laid dry, than it can be in any other way. Whatever be the drilled crop, whether wheat, turnips, or any other, it is quite impossible, that the water can remain stagnant in the drills, so long as there is a regular fall from the higher part of them to the lower, where the drain is placed. There may be some objection to this plan from the difficulty there is in keeping the buts continually in the same position, so that the drain may lie in the furrow; but it cannot be an insuperable one, as this method has been long practised in some of those countries where, from the land being a stiff clay, the wet is most likely. to run on the top.

There has arisen of late years a great rage for the Deanston system. Where so many have tried it with perfect success, and these competent judges, it is impossible to doubt its efficacy. Yet as the experiment

is new and has not undergone the test of long experience, it may perhaps be allowable to offer a few remarks upon it. All deep ploughing is of service; it exposes more soil to the action of the atmospheric influence, and prevents it lodging, as in the usual way of ploughing only a few inches from the surface.

Trench ploughing, or one plough following in the wake of another, goes down 10 or 12 inches into the soil and is an admirable invention, which has been long discovered and practised. It makes the land comparatively dry from rendering it more porous, and it has the further advantage, of bringing up fresh and unstirred soil to the top, and thus creating an entire renovation of it at a light expense. When this method of ploughing was first made trial of, it was found that the improvement was only a temporary one; and that after a few years the land returned to the same state as before. The advocates for the subsoiling system argue precisely the same thing, and say that, it is only by the operation of subsoiling being accompanied with thorough draining, and that deeply, that the effects can be made permanent

So long as the water remains pent up, and has no opening to an outlet, through which it can be discharged, the different particles of earth, however well broken

and separated, will soon run together again, and the whole become a consolidated mass. On the other hand, by drawing off the water, a vacuum is created within; a current of air then circulates through the different interstices, and as air is lighter than water, it ascends, and assists in causing evaporation; and as it is warmer it helps to dry the earthy pieces, which shrink up, instead of being swollen, as they would be, if allowed to remain soaked and saturated with wet. The porosity and open space, thus obtained, will rather go on increasing than diminishing, and the substances, with which the spongioles of the roots of plants must come into contact will have undergone a process, which will better prepare them for affording that food, which all succulent roots must necessarily require. This reasoning seems just and plausible: but another question here arises, will a similar plan of draining be found to answer on land which has not been previously subsoiled? or, on the contrary will not land, which has been lying in grass for a number of years, or has only undergone the common process of cultivation, have become too hard and solid for the same effect to be be produced? the whole draining system depends on forming a correct opinion on this important point, it may be worth while to pursue the mat er a little further.

If any one has examined the principle upon which draining is carried on in those counties where it has been practised for ages, as in Leicestershire and Northamptonshire, he would find that water is supposed to run on the surface.—For this reason an artificial fall is created by laying the land into butts generally of eight yards, and thus drawing the water from the top of the ridge into the furrow, when it is there caught by the drain, and thus quickly carried off. That this principle is a correct one, those who have studied it, not in a theoretical point of view, but from its practical results, will readily admit. The old method was that of draining across the fall of the land. Here, unless there was a rapid descent, the water was slow in reaching the drain; the drains consequently had to be placed near each other, frequently at about four yards apart, by which a great expense was incurred. But besides this, the work was imperfectly executed. Let such a field be examined immediately after heavy rain, and it would be found that in all the little hollows, and wherever there was an inequality in the surface, there the water would lodge partially, and it would be some time before it penetrated into the interior soil, even if that were of a light quality. One reason why so many

have been deceived in forming their opinion as to the manner in which water acts upon land, is in seeing it burst forth from a clayey bottom, when cut into.-No one will dispute, that water, give it time enough, will find its way eventually to the lowest stratum; but the question is, whether if left to itself, and, not assisted in its passage, by some artificial means, the mischief will not be done, before it arrives there? Will not the roots of tender plants or grasses be starved? Will not rushes be generated? If we only remark where rushes grow, we shall find them not on the higher ground, not on the top of the butt, but at the bottom in the furrow and in the hollow parts; where, the good grasses having been killed by stagnant water, those of an aquatic kind have been substituted in their stead.-- If we would only take nature as our guide, she would direct us very significantly, where the drain should be placed.

From what has been said it would appear that a different principle in draining applies to land in a stiff retentive state, and to that, which, has undergone the usual subsoiling process. It is desirable that this distinction should be strictly observed, or else much mischief to farming interests may ensue.—The operation of subsoiling is expensive, and it would be too much to

expect that the whole of an extensive district can ever be treated in this way. Even now it is more in the hands of the smateur, than of the common farmer. But if the same sort of draining be used for other land, as is applied in the subsciling system, the labour and expense of it might be all thrown away or nearly so. According to the plan there recommended the drains should be three feet to three and a half feet deep; and some advise that they should be filled up with clay. If this were done in land not deeply and thoroughly stired,... it is doubtful whether the wet would ever reachthem at all; or not till it was too late to be of much service. It: is more important to consider this fully, as some theories. are now current, which have been strengthened by no lessan authority than that of the Royal Agricultural Society of England. In an article in their journal on "Thorough Draining," it is expressly stated (Vol. ii, p. 273.) "that. the drains may be placed in the middle of the ridge, where the lands are broad, and some intelligent farmers place them within three or four feet of the furrow." This is evidently, supposing that all water passes quickly through the lighter stratum of the upper soil, until it is held by what is termed "the moor band or pan," And yet so little reliance is placed on this, that in another article of the same work, a different process has to be resorted to, which indirectly attests the correctness of water running on the surface, even on land that has undergone the subsoiling operation. In a field thorough-drained at Drayton after being subsoiled, the drains were made two feet six inches deep, they had first a covering of brushwood (Spruce and Scotch firs) laid upon the tiles, and six inches in depth of small pebble stones were laid upon the brushwood, a thin layer of turf (grass side downwards) was laid upon the stones, and then filled up with gravel, or sand and soil, which had been dug out of the drains.—Thus much for different opinions!

"Who shall decide when doctors disagree,
And soundest casuists doubt like —and me?"

The spirit with which draining has been entered into in this county, does great credit to its landed proprietors. Yet there are still to be seen large tracts of land, on which the light of science has never yet shone, and which look as hideous and unreclaimed as ever. It is not many years since the first basis was laid of this great improvement. It was commenced first with stones; these were found cumberous and expensive for carrying off top water. Tiles were then procured.—One great objection to these is the difficulty of making them really

good; and if bad, they are almost useless.—Even one faulty one may stop the run of a whole length.—If not well burnt, they crumble to pieces with frost; and if there be much lime in the clay which forms them, the lime lodging in the tile renders it liable to erack. Even the clay being ground in a mill will not entirely prevent. the failure. Draining with turves has since been much approved of; and in many respects it is infinitely preferable to the other. Mr. Wilson France, who has done so much as an agriculturist, particularly in bringing a large tract of moss land into a most beautifully productive state, was the first who introduced the method into this country, which has since been carried on to so great an extent, and with such happy results. turf is cut into rather a wedge like form about twelve inches in length. The top soil being first removed with a common spade, the clay is cut into, ten inches deep, narrowing to a point at the bottom.—The turf takes up four inches in thickness—there are then six inches left for the open part. The good soil in the furrow being reckoned at eight inches, the depth of the drain is thus made eighteen inches. The whole work of cutting, filling up and laying the tiles may be done at three-pence the rod of seven yards—a good workman may

earn two shillings a day at this rate. The turves may be reckoned to cost in cutting and drying six shillings per 1000.

£. s. d.

Total cost per acre at eight yards apart £1 11 71.

No draining can be done so cheap as this, and none it is supposed, by those who have tried it, so effectual. A great land-agent from a midland county, who had inspected it, gave it the preference to tile draining, and said that nothing but the want of turves would prevent his adopting the plan on the large ducal estate of which he had the management.

In this county draining is in its early stage, and has scarcely yet been applied to the ploughed land. Whoever looks at our stoney, stubborn, clayey soil, and considers the difficulty there is in preparing it for a good seed furrow, within any reasonable time, will

readily admit, that so long as it remains in its present wet condition, there is little chance afforded of reaping a remunerative crop. A team should never be allowed to enter upon ploughed ground, unless the latter be ina state sufficiently dry to prevent the horses poaching it, and care should be taken that the clods are in a suitable order to be converted into a loose friable mould, when acted upon by the harrow. If these clods are turned over, when saturated with wet, they will cake and harden to such a degree, that they can_ not be properly pulverized again that season. even been known that, when the ground has been so treated, a long continued drought succeeding heavy. rain has brought it into such an unmanageable condition, that the most powerful machine could not pene. trate it, and it was obliged to be abandoned to the following year. The nature of our climate should not be lost sight of. If in the south complaint be made of suffering from too much wet, still with us aremany farming movements rendered uncertain and: precarious from the same cause. The last season was particularly favourable for the working of land. Therewas a lengthened dry spell of fine weather, with the intermission of what might be called heavy showers.

rather than continued rain. The seasonable mixture of the two facilitated the operations of the plough, and left no excuse to the husbandman for fallows not being clean as well as fine. Not so was the case of the four preceding years. The weather began partially to break early in July, and from that period quite far into the autumnal season, there fell a deluge of rain, with some intervals occasionally of a few days The consequences were most serious to the sunshine. farming classes in general, and rents were therefore ill paid. How different would it have been if the land had been drained Not arguing from a particular year, but from calculations founded on general facts, we may safely assert, that if our stiff soils were drained some weeks might be gained in the seed time, and the same in the harvesting. All the fertilizing powers of a soft well mellowed seed bed, would tend to aid the early rise of the plant, and develop its more matured growth; with the potatoe and the turnip crop the advantages would be still greater. In this case the soil must be made perfectly fine to allow the tender shoots to rise above ground, and to receive their proper nutriment. If it remained in large lumps, and a drought was to come on soon after seeding, the heat

would penetrate the fiberes of the earth, and dry up the potatoe sets, which would then not be able to sprout from lack of moisture, but would perish. Thismay not be an improper time to allude to a serious. loss that has been sustained in this crop for several years, from a cause precisely the reverse of this, viz; from the ground being over worked, and thus all its moisture drawn away. The plants in many instances never came up, and it is supposed by some, that the fault lay in the seed, and that this in certain sorts was worn out. Extraordinary cases were quoted of one man having planted a drill, which entirely failed; and of another man planting an adjoining one, that did well: of one man having planted in the morning and another in the evening with varied success. This shows evidently the cause of the failure, viz; from the drought which followed soon after planting. The mischief might arise either from the ground having been over wrought, and thus all its moisture evaporating or in consequence of the set not being covered up as soon as the land was prepared for it; or on the other hand from the set having been cut some time before it was wanted; or, as is frequently the case, from its having been left to dry up exposed to a scorching

Planting the potatoe whole is recommended by some, and has been found to answer. The reason of this is because the moisture is retained within the skin. as it is with a sheese, until cut into. But to return from this digression.—Let us reflect on the damage done of late years to the crop we having been speaking of, by allowing it to perish in the ground from stagenant water in the drills, often up to the very brim, and it will scarcely be disputed, that the tenant would have indemnified himself in one single year for the expense of draining; -- which we have just seen would have cost. him only £1 11s. 71d. per acre; whereas, his loss has been from ten to perhaps twenty times that amount. But the evil does not stop here—the manure, perhaps the best of the farm, that has been used for his most choice piece of ground, is wasted and lost; for it is well known, that if manure lies wet, it is good for nothing. The crop is too late from starvation, that before it can be taken up, the weather may have broken to such a degree, that the plough cannot come upon the land, which thus lies all winter deluged with wet. How beneficial would have been the result, if the fertilizing properties of the manure had been preserved, for the benefit of the succeeding crop, and if the ground had

been laid high and dry into the ridges in order to render it more friable from the compressive powers of a hard frost.

A plentiful supply of good farm yard dung being an indispensable requisite for carrying on to advantage the most important operations of husbandry, it may be well to consider what is the best mode of raising it. The introduction of the turnip system has tended greatly to the increase of the dung heap, from the means it affords of a larger quantity of stock being kept upon the same breadth of ground; and as the cattle are beginning to be more kept up in the yard, than formerly, there will be an increase of it also from that source. To assist this primary object the making of manure, it is absolutely necessary that there should be an enclosed farm yard, with every accomodation for young stock, milch and feeding cows, and for what are most useful and valuable, a large number of pigs,-Let it be considered for a moment what has been and still is a common practice in some places, in a branch of farming of all others the most important. In some cases the cows have been known to lie nearly on the bare pavement, that the expense of buying straw might be avoided. After the droppings of dung, almost in

its raw state, have been removed from the shippon, they are frequently deposited on a sloping bank, or by the side of a pond, where all the best part will either be dispersed in empty air, or washed away into an adjoining watercourse. If instead of this wasteful expenditure of so rich a treasure, care be taken to carry out the proper farm yard system, the difference it would make in the improvement of the land would be There is always a danger of cultivating grass crops too largely. The immediate profit from, them is evident; the distant, contingent, and uncertain. An improvident farmer looking only to the present and disregarding the future, will always gladly dung to his ploughed land; but if take his he does this to the injury of his grass land; if he does not raise a sufficient supply for both; or if the latter is not to have its full share, in a locality like our own, the worst, the most injurious and in the end the most destructive consequences may be expected to ensue.

The enclosed space in a farm yard should be sufficiently large to contain all the dung, from the adjoining buildings, and likewise have room for its being mixed with different sorts of soil to form a large compost heap. There should also be certain parts partitioned off for

stock of various kinds, with open sheds attached to them. It is now found that cattle will fatten better in an open place, than when tied up in a stall; and they make more manure this way from the litter lying loose, and covering a larger surface. The growth of turnips and other succulent food has tended greatly to improve the system of house feeding.—These roots, if given with cut straw, chaff and some hay mixed together and then well steamed, will keep horses and stock in better condition than if they were fed on dry meat alone. Milch cows are particularly benefitted by it. This sort of management makes an immense saving in the hay stack, and by its means the expense of feeding cattle is much lessoned. So many other advantages depend upon the proceedings going forward in the farm yard, that unless these are well conducted, no good result can be expected. Before turnips were so much cultivated, they were of great value for sale. An instance is known near Liverpool, where 40 tons of swedes were raised upon a statute acre, which sold at £2. the ton. At present they have been selling near Preston at 12s. 6d. to 15s. the ton.—At this price they would scarcely pay for the manure expended. The whole should therefore be consumed at home.—In doing this,

it is a great advantage to have a steaming apparatus.— One on a small scale may be furnished for about £8. such as is represented in Mr. Low's excellent book of "Elements of Agriculture." (p. 132). The plan of it is simple and good. Perhaps a long box divided into three compartments with slides at the bottom is preferable to barrels.—One division may contain provender for horses and the other two for stock of different kinds. The system of house feeding has been no doubt greatly advanced by the plentiful use of green crops; yet there is still a difficulty to be overcome. Swedes will not keep beyond April, and not always till then, and thus there is frequently a failure at the time, when food is the scarcest. A white carrot is mentioned (Royal Agriculural Society Journal,) which is productive and will keep longer than the swedes. Mangel wurzel is said by experiments made to contain more nutriment than swedes, but it is not every land that suits it, as it requires a rich loamy soil, and one of great depth.

At certain intervals the manure is to be carried out from the different sheds and shippons to form the dung-hill.—There are some such excellent rules in the Gardeners' Chronicle, for the formation of it, in No. 22, April 1, 1843, that it is only necessary either to extract

from them or refer to them in order to understand the whole process. This article justly remarks "that all the best parts of the manure will either run away, or By away, if means be not taken to prevent it. The dung should be placed in layers, and some fixer thrown at the top, should be well trodden down. This may be either gypsum, oil of vitriol, salt, or other substances, if they can be had cheap; if not, cinders, bog soil, or scowering of ditches will answer the purpose. A gutter should be cut all round the dung-hill, six inches wide and four inches deep; and puddled with clay, so as to be water tight. Then, at the lowest part, outside the place where the dung-hill is formed, a good sized sinkhole should be dug about eighteen or twenty inches deep: this also should be well puddled and connected with the further already spoken of. Every morning the sink-hole should be examined, and the drainage that has collected in it, be scappeted back over the heap.— None of the drainage should on any account be lost." In the winter time however, when the heavy rains have set in, the overflowings from the farm yard (not including : the drainage from the buildings which should be carried off in a direction by itself) are so profuse that theycould not be contained in one or more moderately sized sink-holes. To catch these overflowings a tank or reservoir should be made of a considerable size on the outside of the yard. This reservoir should be covered in to prevent the escape of the ammonia. When it is full, the contents may be conveyed away in a water-cart. The operation of filling from a common scoop is slow and troublesome, and would be much assisted by the use of a pump. Liquid manure is valuable, if a sprinkling of it is thrown over grass land, even when in its raw state; but it is perhaps better applied, when mixed with a compost heap, which should be formed in an oblong shape and hollow in the middle to receive the contents of the cart.—The whole should then be turned over and well mixed together.

It is certainly better that most of the manure should be made upon the farm rather than be purchased and fetched from a distance.—Yet in certain situations rents are raised from local circumstances, such as in the vicinity of a large populous town, and in this case it would be ill judged not to make the most of the advantages within reach, and to buy manure where it can be obtained at a low rate. Whatever be the value of purchased manures, it must never be forgot, as is stated in the article just quoted, that these things cost money.

They should therefore in a general way, not be sought ? after, until every resource is exhausted at home. There are many things which might be turned to a good account and are yet quite neglected. The remark is a true one "that every thing is a manuring substance, which has ever been alive. The dead remains of animals and plants are each in their way equally valuable. People forget what is the origin of substances : in very common use, and do not recognise the fragments of plants, and animals, though they are every day before their eyes. For example, coals are the remains of plants, therefore einders, soap suds, cotton and woollenrags are manuring substances, just as much as charcoal, stable litter, or bones." As to the new manures such as Guano, nitrate of soda, and numerous others, they have scarcely yet been sufficiently tried to judge of their Guano has been known to bring a heavy proeffects. duce both on grass and ploughed land; but it is not so certain, whether from acting too much as a stimulant, it may not draw out the virtues of the soil to excess, and so impoverish it afterwards. As it is produced from an animal substance, there is every prospect of its proving a good fertilizer.—Nitrate of soda has beenknown to fail, but this may have arisen from its notswiting some particular soil. The study of chemistry, now going on, and the application of its uses to farming purposes may tend in time to adopt such manures to soils as are most beneficial.

In the letting of farms a good deal of consideration is required both as to the tenure by which the land is to be held, and also as to the mode by which it is to be managed. It is certain that in the best farming districts, leases are granted from fourteen to twenty-one years; consequently it would seem as if the better condition of the land in these districts was owing to the length of the term granted in them; but such probably may not be the case, for long leases may have existed before ever any great improvement took place: at the same time it is equally certain that no very enlarged system can be carried out unless sufficient security be given, that the undertaker receive an adequate remuneration for what he has expended: In some counties land is held at If there be perfect confidence betwixt the parties, and an understanding that a rise in the rent will not take place according to the increase of value in the farm, this method may answer well; but it may be questioned whether a greater stimulus to exertion would not be given by having a certain term fixed, with proper stipulations

annexed to it; and if at the expiration of this period some further scheme of improvement be considered and agreed upon.—As to the farming in this county, when we see the class of people engaged in it, their utter inefficiency in all those qualifications, which constitute superior excellence, whether in capital, skill or enterprise: and when we view the general low state of agricultural knowledge amongst us, it may be doubted whether long leases would not be rather injurious than otherwise.-They would certainly be all in favour of a bad tenant, and against the landlord; as in this case an opportunity would be afforded for the whole farm to be run through, and ruined, and then abandoned; which indeed is not an uncommon occurrence even as things are constituted at present.—Leases with us are usually for seven years. Where the time is so contracted and insufficient for any undertaking on a large scale, it is incumbent on the landlord either to meet the tenant with any suitable scheme of improvement, or to execute such himself. lord may undertake the draining part himself, which would be effecting a permanent good on the estate, complete it in a manner most to his own satisfaction, and find employment for a large portion of the labouring poor. If he wants the tenant to join him in other matters, he

may agree for him to cart up a quantity of sea slutch, or bog soil, if within reach; and make him an allowance in manure to be mixed with it, and then be put upon the pasture land.

Amongst many discoveries for the improvement of land, and also the condition of the lower classes, there is none more deserving of attention than the use of spade husbandry. The advocates of this system contend, that it is the best mode of preparing land for future crops, that an increased produce will repay any additional outlay, that in many cases the plough may be dispensed with, and thus a great saving be made by the keeping of fewer horses. If this statement be correct, may it not be attended with most important and salutary results at the present time, when there is a redundant population, and the supply for labour far exceeds the demand. There is something awfully astounding in looking into future events. with our numbers increasing about 300,000 yearly, unless some new sources of employment can be discovered. All will admit that our land is not half tilled, half worked, half managed, as it should be. How does China support her immense population of three hundred millions but by cultivating every nook and corner of the land to the very utmost. Let us not think of looking abroad for foreign.

colonisation, until we have first followed in our own country the example set us in this respect by China. Opening a new field at home, instead of abroad, would effect acertain and permanent improvement. It would give subsistence to a suffering race of people; raise them in their own esteem; give them better moral habits; and last though not least, rescue them from the degradation of a work-This again would benefit the landlord house servitude. as well as the poor, by lowering their rates. The labour test in the workhouse is nugatory and valueless. industrious habits can be enforced by penal enactments. Labour to be remunerative must be gratuitous. encouragement to every new species of employment that ingenuity can invent; let persevering industry be rewarded by an adequate compensation, and an honest peasantry, its country's pride, will thus be elevated to happiness and good, instead of being sunk in misery and crime.

There is a publication by John Gelloly, M.D., F.R.S., in which the merits of spade husbandry are ably advocated, and fully detailed. He does not endeavour to demonstrate its advantages by theoretical reasonings, but by practical experiments, made upon a farm of John Mitchell, Esq., at Waterfield,

in the parish of Wymondham, in Norfolk. "The farm consits of 317 acres, of which 207 acres are arable, and 110 in pasture and plantation. It is a mixed soil, but rather disposed to be heavy. A great number of able-bodied labourers being in an almost constant dependence on parochial relief, for the whole or a. eonsiderable part of their support, Mr. Mitchell was desirous of having spade husbandry introduced into the district, from a belief that much of this superabundant labour would be employed in conducting it. and that the increased expense which would thus be occasioned, would be fully compensated by the augmented produce. The process was begun with the spade, but it was found that a strong three-pronged fork of fourteen inches deep, and seven and a half inches wide, was more manageable, and less expensive than the spade. It cost 4s, 6d, instead of 6s, 6d.; weighing eight pounds, and when worked down, could ' be relaid at a triffing expense.

The digging is effected by taking in about four inches of earth at a time, pressing perpendicularly, and getting to a proper depth at two thrusts. The earth is not, however, turned out of the trench to a greater depth than ten inches, though the fork may

get down as far as thirteen or fourteen; but that which remains at the bottom, in the state of what is called 'crumbs,' answers the purpose, equally with the earth which is thrown out, of forming a permeable medium for the roots of the plant which is to grow in it.

The men receive, for the ordinary digging after a white crop, from 2d. to 21d. per rod of thirty square yards; the price varying according to the tenacity of the soil, and whether manure is to be dug in. When the land is to have a fallow crop, that is, turnips, mangel wurzel, or cabbages, (for no part of the farm has ever a naked fallow) there is first a ploughing, which is done at the season when the horses can be best spared, and afterwards a digging at from 11d. to 2d. per rod.

Though digging is the principal occupation of the men, yet they are employed in all the common operations of husbandry, at the common rates of payment; and all the work of the farm is paid for as much as possible by the piece. The ordinary earnings in digging are from 11s. to 12s. per week, according as the rate of wages may be high or low. A seven year's course of crops seems preferable to the usual one of four in spade husbandry, which would be according to the following:—

Year. Ac	res.
1.—Fallow crop of Turnips, Cabbages, &c 3	0
2.—Barley 3	0
3.—Clover, or Artificial Grasses	8
5.—Oats	9
6.—Beans, Pease or Tares 3	0
7.—Wheat 3	0
Total of Arable acres 20	7

It is to be observed, however, that the clover layer has always been ploughed for the succeeding crop, and not dug; the horses when not wanted for other purposes, are employed in assisting the diggers in preparing the land for seed. Spade husbandry can hardly be expected altogether to exclude the plough; for as a certain number of horses are necessary for various operations on a farm, they will naturally be employed in ploughing rather than kept idle. Twenty labourers besides a bailiff, are kept upon the farm, instead of thirteen, who would be necessary, under the ordinary system; and five or six horses, instead of twelve. With so small a number of horses it is clear they would not be equal to all the demands

of the hay and corn harvest; and hence, a good deal of the hay and corn are stacked in the fields where they are grown.

Mr. Mitchell considers it to be an advantageous consequence of spade husbandry, that it improves the soil so much, as to enable it to bear the clover or grasses two years instead of one, by which means the expense of one year's tillage is saved. The farm upon which he commenced his operations, which was then in very bad order, being very foul, and much exhausted by injudicious cropping, is now in a high state of cultivation. After an experience of five or six years, Mr. Mitchell has satisfied himself of the advantageous nature of spade husbandry and of its adequate productive His main object in undertaking it has been answered by showing how readily increased means of employment may be found, in an agricultural district, by a little alteration in the management of a farm, and with a profit, rather than a loss to the employer.

It has been suggested that there is a disadvantage attaching to the employment of spade husbandry on a large scale, in the constant and regular inspection which it requires, and which a farmer himself cannot give.—

If there were a digging of four or five inches less depth

than is proper (which would be much easier to the workmen) the difference could not be detected by external appearances, while the produce of the land would be materially affected.—Men, however, working together have a salutary check upon each other, particularly when subject to the vigilance and control of a sturdy co-operative inspector; and an iron crow or other pointed instrument, offers a ready mode of ascertaining, as in trenching, whether the proper depth has been attained.

Spade husbandry is not a system of expense or risk. Less capital is necessary for it than ordinary husbandry, in the smaller number of horses and implements used, while the advantages are speedily exhibited. Its tendency is to diminish and keep down the poor-rates, and thus to aid materially the favourable operation of the poor laws.

Spade husbandry bears a considerable resemblance to horticulture in its operation on the soil, which it comminutes and cleanses much more thoroughly than can be done by the plough or harrow. By turning up the ground likewise five or six inches deeper than the plough, there is an opportunity afforded for the descent and diffusion of the roots which are often interrupted

in their progress by a hard and impervious substratum; and in this way augmented means are allowed for their acquiring nourishment, through their spongioles, from the soil beneath. With regard to wheat, the number and length of the roots are much more considerable in forked, then ploughed ground.

But there is another important benefit which this system is capable of producing. The whole efforts of cultivation seem at present, exercised on three or four inches of ground at the surface; whereas the constant claboration of two or three times that quantity, its exposure to atmospheric influence, and the continual addition of decomposed vegetable matter afforded by a succession of rooty fibrils must effect a great and permanent improvement in its character and productive power.

As an additional encouragement to his workmen Mr. Mitchell allows eight of them a comfortable cottage and a garden of about a quarter of an acre of ground, at a fair rent. He also allows to such of this number as are desirous of it, a couple of acres of land at its ordinary value; but it is on the express condition that it is cultivated by the spade or fork. It is clear however that only a small portion of this ground can be

managed by themselves, as the men have usually fulf work under Mr. Mitchell, which is necessarily required to be the primary object of attention; but they find it worth their while to pay such labourers fair wages, as may happen, at particular times, to be out of employ, for working their ground; and they often contrive to throw in a little labour of their own at meat-time, or in the morning, or evening. Two of the workmen have availed themselves of this favour; and in consequence, there were very luxuriant crops of wheat, barley, and beans growing on their little allotments".

This fair and satisfactory statement fully proves the advantages to be derived from spade husbandry. We have seen that with the addition of seven labourers, a reduction has been made of six horses; and the work too has been much better performed than in the old method; a larger produce raised on the same portion of land, and the soil been constantly going on improving, instead of being deteriorated by an inadequate mode of cultivation. This fact, might perhaps have been readered still more convincing, if an experiment of the two methods had been made from the produce grown on two different pieces of land of the same breadth and goodness but enough has been shown to hold out an inducement

for its adoption either on a large scale, where labour issuperabundant, and consequently can be obtained at a low rate, or where it is only required for those smallplots of ground, which ought every where to be appropriated to the use of the agricultural labourer and his family in the shape of allotments. In the description just given us, there is one striking circumstance exhibited, which is deserving of a passing remark. Twelvehorses and twelve labourers had been employed on a farm of 317 acres. Does not this show most clearly what is the fault of our Lancashire farming? With us. probably not more than half that number named would! be employed. Our land therefore is only half worked a: and from this being the case, only one half or one quarter is grown upon it that ought to be. If the samecapital and labour were expended on 100 acres as on: 200, the result would be very different both to the tenant and landlord.—Perhaps it may be said the latter is. in fault for not giving longer leases, but would his doing. so remove the evil, unless more application of all the requisites for improvement was likely to be brought into action.

To return to our subject—spade husbandry is of user in laying down land to grass, and in preparing it for as

plantation. Where a field has been thoroughly impoverished by over cropping and filled with weeds. there is no mode of laying it down to grass so good, as trenching with the spade. The old system is now happily exploded, that of letting land lie, because it is so worn out, that it will not produce a corn crop. No land should be laid down, unless it first be brought into good heart, and the particles of soil be well broken and pulverized. If the land be by nature of a stiff retentive kind, and by mismanagement be rendered still more so, it is very doubtful whether it would ever repay the expense of a green crop. A naked fallow might be the means of cleaning it, and, so far as that went, it would be doing a great deal of good; but this would not of itself enrich it. Treaching with the spade would be the cheapest and most effectual mode, by which the desired end could be attained. For this eperation the whole field should be first drawn out into breadths of eight yards for the butts, which may be done either by the plough, or with the spade, by the overlooker who will be required to work along with the men employed, or within reach of frequently inspecting their work. The butts are to be trenched sixteen inches deep at their top, curving regularly down to the furrow.

in which a hollow should be left for facilitating the draining on the following year. Each man should have a stick of the exact length of the depth he is to go, which should be tried frequently by the inspector with the ground already dug. The first spit of the spade will throw all the old sterile soil with the weeds in it to the very bottom of the trench, the loose pieces of earth lying there having been first well shovelled. up, and spread upon the upper part. These weeds, if buried to the depth named, will not spring again. The second layer of earth will consist of the unstirred soil. the value of which will of course vary in different, situations, and perhaps in some, it may not be worth bringing to the top. In that ease it may be better tolessen the depth, or, if the merits of the subsoiling system be clearly established, to go the sixteen inches deep, keeping the upper soil, where it is. If the work. be done before Christmas, and the clods are laid uplarge and rough, they will fall from the action of the winter frosts; and it is quite extraordinary how fine the whole will become. It will then constitute an admirable seed-bed for oats or barley. If, however, any quantity of rain has fallen, the outer part is apt tobecome so sad and encrusted, that it is desirable a light.

skimming of the plough should be given it; and if a good compost with lime or dung in it, be put on at the same time, the succeeding crop will be much benefited... as well as the grass seeds that are to be sown upon it. By the plan here suggested, the following advantages. will ensue; the butts will have been formed with greater regularity then they could have been by the common. operation of the plough; the soil has been opened and comminuted according to the subsoiling plan, and the drainage will be made to suswer either principle; the one, supposing water to run underneath the soil; theother, on the surface of it; a new soil has also been brought into play, which, in some cases, where the land has been quite worn out, may be of consequence-But one of the most important advantages attending it ie, that unless this were done, a fallow would be required, and the land would have to lie for a year without being cropped, which of itself would be a great loss.

An experiment, that was made in trenching last year, was attended with the following results. The field was about five acres; the soil a strong clay. The tenant had refused ploughing it again, as he said it would not bear a corn crop. It was double-trenched.

in the manner mentioned. The price of the trenching was 10d, a rod of seven and a half yards; which amounted to £3. 11s. 10d. the acre. A tolerable erop of oats followed this management, perhaps from three to three and a half loads per acre. The grasses which have succeeded them are rich and luxuriant to a degree; and what is the most striking part of them is, that one butt, by some mistake, having been omitted being sown; the difference on this is most remarkable, there being scarce the appearance of a good grass root upon it, and little else but thistles or the coarsest weeds. The field has had five young bullocks, and twenty sheep feeding upon it; the growth of grass having rather gained upon the bite than otherwise. should here be mentioned that the adjoining field, about twelve acres, which was much in the same condition as the other had been, was placed under the same treatment this year. The prospects from it, at present, are not so promising. It was trenched before Christmas. The quantity of rain that followed, particularly in March, eaused it to lie deluged in wet-There was no coming upon the land till April, and then some time was lost. A drought having succeeded the wet, when the land was sown with oats, the second week in May, it had become so caked and hardened, that it was impossible to bring it into a good state for sowing. The oats now in July are looking meagre and scanty, and it is doubtful whether they will ever be a decent crop. Even should this be the case, it should not raise a prejudice against the system, as the failure has most probably arisen from the late sowing, and the improper state of the ground when sown.

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Of all the uses to which the spade can be applied. there is none so good as in preparing land for planting. In former days much the same ideas prevailed in regard to planting, as in agriculture, if it could be so called. It was considered sufficient merely to make a place in the ground for the seed or plant, then to cover them with earth and leave them to chance. Time and experience showed that though immediate decay might not ensue, yet the growth of either from such neglect would be impeded, and perfect maturity could never be attained. In planting, the pitting system for a long time was practised. This was simply tocut a three cornered hole in a grass field, toplace the root of the plant in it, and the unbrokenlumps of earth upon the roots.-In doing this the soil used was so stiff and cloddy, that it would not mingle

well with the roots, and as the hole was a reciptacle for water, the small fibres perished from wet and want of sustenance. It was then found expedient, before any great good could be effected to prepare the ground beforehand by trenching it with the spade.—This answered well, and if a green crop along with manure could be afterwards grown amongst the young trees, a still further improvement was attained. If the trenching be performed in the manner already described, the tree, which is eventually to be the principal, should be planted at the top of the butt. By this means it will lie perfectly dry; and as the soil will be more gathered in the middle of the butt, than at the sides, and will be of the best quality, the tree will have a greater depth for its roots to shoot in, and will be forwarded in its growth by the nourishment it is sure to receive. This method of planting is here more strongly inculcated, because its advantages have been made evident both from correct principles and practical demonstration. By its adoption an immense saving may be made in time. Under this treatment not only will the trees make a good shoot at their early commencement, but they will go on improving, looking healthy in their bark, and expanding their foliage, if room be given them; and if the theory be true, that the sap is elaborated in the leaves, the wide spread of the branches is a most important part in argoriculture.

If trees are planted in beds, such as have been described, they will not be so liable to suffer from high winds. In the great storm of 1839 many thousand trees were uprooted in different parts of the kingdom. not impossible that the proprietors of these may have felt themselves, at such times, hardly dealt with by the unkindly elements, whereas they should rather have attributed their misfortune to their own want of skill and management. When this great loss and destruction occurs, it generally proceeds from two causes; the want of thining, and the want of draining. The roots of trees are said to extend as far underground, as their branches do above. If this be true, one mode of assisting the stability of a tree is by giving plenty of room for its branches to spread, as by this means the roots will spread also. In addition to this, if the roots of different trees approach too closely to each other, they cannot thrive, as they are deprived of the nutriment, that may be properly said to belong to each. The tree itself is thus rendered weak and unsteady. the length of root not being sufficient to hold it firmly in the ground. If the land be not drained, there is still less chance of its withstanding a violent gust of The small fibres of the roots, if they have not been killed by stagnant water, yet they cannot have made any vigorous shoots. The soil having become loose and swampy from wet, the roots can have no strong hold in the earth and are easily torn from their places. This is more particularly the case with those trees that send out their roots laterally, such as the larch. a rare occurrance for a tree, in a hedge-row or in the open, to be blown over; yet this would appear more probable from its being more exposed, than when in a more confined spot; and also from its having a larger top. But it is the very top and the spread of the branches above, which have been left to themselves and not interfered with, that has prevented its being torn up by the roots; as these have from this cause, extended themselves so far, that they are like so many cords or binders to keep the bole in its proper upright position.

The foregoing remarks on spade husbandry have been directed chiefly to the trenching system; but experiments are said to have been made, which serve to prove that digging the common depth of one spade, eight inches, will give in certain crops, such an increased produce, that the expense of it will be fully repaid, even if it be done by hired labourers. There are no means of ascertaining the correctness of this from any proofs that can be brought forward in this place, but those who have tried the experiment have pronounced it to be a most efficient practice. The expense of it would only be about one half the other, or as sixteen to thirty. One fact is clearly established, that a small piece of ground, being dug and husbanded with a preper succession of crops, will if properly managed, yield at least double the quantity of produce, and consequently keep double the number of stock, which the same breadth would do, if kept in the state of one of our common pastures. This brings us in the next place to notice the subject of allotments.

Allotments are of two kinds; the one of no greater size than can be considered a large garden, or from about a quarter to a half an acre of ground; the other considerably larger, consisting of several acres. The former was brought into notice many years ago by a very useful tract published by the present Bishop of Bath and Wells, in which he described the manner in which it should be conducted, and the success which had attended the trials he had made of it himself. Since then different enlightened individuals who have

had the improvement of the condition of the lower classes much at heart, have entered into the subject more at length, and have detailed a system, which even if it be only carried out in part, will prove highly beneficial.

In the "Cottage Farmers' Assistant" by Cuthbert Johnson, Esq., rules are laid down for cultivating twenty poles, or half a quarter of an acre of land. In this work it is stated "that twenty poles of good ground, wellcultivated, will yield a greater quantity of vegetables, than can economically be used by a labourer, his wife, and three or four children; in which the overplus must either be sold or employed in fattening a porker for Michaelmas, or a baconer for Christmas. This, with such a garden, & labourer may safely attempt to do, provided he has the conveniences of a sty, an enclosed yard, hog tubs, bins, &c.; and provided also he has a little ready money to buy his pigs bran and pollard to mix with the boiled vegetables, and barley meal (the mess being allowed to ferment before using it). A pigsty and a garden aid each other greatly. The silly custom of throwing raw potatoes, carrots, parsnips, and cabbage leaves to the pig is a great waste, half their nutritious quality being thereby lost."

The plan of management is as follows:—suppose the garden to be an oblong square, thirty eight yards in length and sixteen yards wide, it is to be divided into seven yards in breadth, of which

- 1 Yard is for Pet-herbs and Rhubarb,
- 2 do. Seed beds and Radish.
- 3 do. Onions and Leaks,
- 3 do. Carrots,
- 3 do. Parsnips
- 7 do. Cabbages,
- 16 do. Potatoes.

CALENDER OF OPERATIONS:-

January.—Sow early Frame Peas, Magazan Beans,

Febry. —Sow Carrots, and small beds of early York Cabbage, transplant Cabbages,

March. -Sow Beans, Peas, small bed of early Turnips,

April. -Transplant Potatoes,

May. —Transplant Cabbages,

June. —Transplant and sow Turnips for early use, Cabbages, &c.

July. —Sow Lettuce, Turnips for succession, transplant Cabbages,

August. —Sow early York Onions, transplant Brocoli, &c.

Septem.—Sow Onions, Lettuce, Carrot to stand winter; transplant Cabbages,

October.—Sow Beans to stand winter, transplant Cabbaga for spring,

Novem. —Cabbage may still be planted, earth up crops,—Decem. —Prepare ground for spring crops.

The plan here suggested must doubtless be a great help towards enabling a poor cottager to maintain himself and his family, and provide them with certain comforts and superfluities at their meals instead of being driven to a bare sustenance, and to what is now too common, a large pot of potatoes with a slice or two of bacon. An allotment on this small scale is rendered subordinate to any other employment, whether that be weaving or out of door work. Any space of time, either before or after hours that he has been engaged in other concerns, may be devoted to the garden, which thus does not interfere with what he has to do elsewhere, gives a constant interest, and may often be the means of keeping away from the door pinching famine.

The large allotment has more extended objects in view thant he other. It proposes to find full employment to the occupier, and thus to render him independent of hired-labour. Objections have been made to this as being

fraught with much mischief. Mr. C. Buller in his late able speech on colonisation said, "that to men of independent and regular employment the allotment system seemed excellent, but he could not conceive a greater curse on the country, than to have a large proportion of the labouring class quit work for wages and depend on the allotment system". The value of an expedient of this kind must entirely depend on circumstances. If the labour market be over stocked, then a substitute must be looked for to supply the deficiency.

In Ireland the allotment system has often been accompanied with much misery and suffering, which may have created a prejudice against it; but the fault has arisen not so much from the measure itself being a bad one, as from the failure of a particular crop, on which the whole subsistance of the people depended. How would it have been if no such system had existed? absolute starvation must have ensued. Wages are there reduced to the lowest possible ebb, eightpence a day to maintain a labouring man and often a large family. Even that is not always to be obtained. A celebrated traveller, Von Reaumur, has told us, that he had travelled over most parts of the world, and had never known what misery was, until he had visited Ireland. Where scenes of distress are pre-

sented to the view, unparalleled in the history of mankind, common humanity appeals to us most powerfully to look out for a remedy. The opening of new fields of employment seems the most obvious course to secure an overwhelming population from their present destitute condition. The allotment system, if conducted according to Mr. Blacker's plan, has been found to improve greatly the The execution of circumstances of the poor cottager. this must, however, rest with the great landholders, and even if they were likely to be favourable to it, it could not do more than produce a partial good. The waste lands offer a larger scope for exertion. Individual means are likely to do little towards cultivating these, as capital and enterprise are alike wanting: but if the government would come forward with loans suitable to such an undertaking, there is every reason to believe, that companies would be formed, who would gladly embark in a scheme, which would hold out such a promising investment.

Many persons were sanguine enough to expect that the new poor law system would bring with it a salutary relief. This hope seems now to have vanished, and it is believed that the work houses on which such large sums have been expended, have served rather to aggravate the evils complained of, than to remove them, these had been placed near some of the morasses, and means taken to employ the pauper inmates in reclaming land, which is capable of being made extremely productive, better success might have attended the undertaking. As a proof of this, let it be seen what has been done near Lismore. A society-of Trappists have there settled themselves, "Sir Richard Keane. a large landowner in that neighbourhood, granted them rent free, on a lease of a hundred years, five hundred and seventy odd acres of moor and bog land, and Sir Richard is likely to be amply repaid for his liberality in the proof which has been afforded of the capabilities of the land. The very first year a fine crop of potatoes was raised, and in no great length of time afterwards luxuriant crops of oats were grown upon some acres, as in any other part of the country.—The land is boggy on the surface; but below there is as fine and deep a soil, as any farmer could desire. The spectacle is pleasing as affording direct proof of the facility with which a great part of the waste lands of Ireland may be cultivated by the instrumentality of two-things with which Ireland so much abounds-lime and human labour." Inglis's tour, Vol. 1, p. 168. Some plan of

a similar kind would go further towards pacifying Ireland, than all other enactments put together, be they what they may. Human nature speaks in language not to be stifled, that no race of people can ever be attached to another country, so long as it can gain nothing from it, but penury and pain.

Mr. Blacker, already quoted, has shown us, in his "Essay on small Farms," that by attaching a few acres of land to a cottage, and placing these under improved management, numbers of Lord Gosford's tenants have been rescued from extreme poverty, some have even paid off their old arrears and have raised themselves to comparative affluence. "The way to do this, he says, is by introducing such a system of agriculture, as would bring the entire of the small farm holdings into a productive state, instead, of allowing nearly the half of them to remain nominally in grazing, but in reality producing nothing; and as this cannot be done without manure, and manure cannot be had without stock, the consideration naturally arises how can the greatest quantity of stock be most economically maintained upon your farms and under what management can the largest quantity of manure be derived therefrom. ascertained beyond dispute, that by the practice of sowing green crops such as clover, ryegrass, winter and spring vetches, turnips, mangle wurzel the sameground which on poor pasture would scarcely feed one cow in summer, would under the crops mentioned, feed three or perhaps four the whole year round—by keeping the cattle in the house and bringing the food there to them; and the manure produced by one of these cows, so fed, and well bedded with the straw saved by the supply of better food, would be more than equal to that produced by three cows pastured in summer and fed in winter on dry straw or hay and badly litteredt By this means, nine times as much manure willbe made by the new method, in as much as three cows may be kept where one was before; and each cow, if kept in the house will make three times the quantity. of manure it would do, if out of doors.

Thus it is by doing away with the old grazing system and substituting for it a judicious plan of house management; and also through the means of green crops and an enlarged use of the spade husbandry, that the lower-classes are to be raised from their present depressed state to comfort and independence. The means, by which this is to be attained, will require a great deal of attention and supervision, as it is only by a regular succession of

tropping, and by making the most of every portion of the ground, that the object aimed at can be effected. If the work be well performed, it is wonderful on how small a space a cow may be kept. Mr. Cobbett places the extent so low as a quarter of an acre. As the whole success of the plan entirely depends on the manner in which it is carried out, it may be of use to give as brief an abstract as possible, of the rules laid down by Mr. Cobbett, in his useful little publication on "Cottage Economy," by which a cow is to be kept on forty perches of land.

Dig the ground deeply in winter, or which is better, trench it: lay it in ridges in April and May, about two feet apart, and made high and sharp, when the weeds appear turn the ridges into the furrows and bury the weeds.

About the end of July put some manure into a square perch of your ground, and sow one half of it with early York cabbage seed, and the other half with sugar-loaf cabbage seed, in little drills at eight inches apart. If the plants come up at two inches apart (and they should be thinned if thicker) you will have plenty. Keep them clean. When the plants have six leaves, dig up, make fine, and dig up another perch or two,

and pick out the plants, 4,000 of each in rows at eight inches apart, and three inches in the row. Hoe the ground often. Early in October lay some manure between the ridges in the other thirty-eight perches, turn the ridges over in this manure, and then transplant your plants in the ridges at fifteen inches apart. If any plants fail, you have plenty in the bed where you picked them out, for your thirty-eight perches will not require more than 4,000 plants. If the winter be very severe, you cannot cover thirty-eight perches, but you may the bed, where the rest of your plants are. A little litter, straw, dead grass, or fern, laid along between the rows and the plants, not to cover the leaves, will preserve them completely. If those in the thirty-eight perches fail, or fail in part, fill up their places.

If you find the ground dry at the top during the winter, hoe it, when March comes and the ground is dry, hoe deep and well, and earth the plants up well close to the lower leaves. As soon as the plants begin to grow, dig the ground with a spade clean and well, and another digging in a month. By first of June you have turned in cabbages, and sown early Yorks solid—and by first of June you may get your cow, one that is about to calve, or that has calved.

The thirty-eight square perches, if the cabbages all stood till they got perfectly solid, will give her food for 200 days, at eighty pounds weight per day.—But you must use some at first that are not solid, and then some may be split. But you will have pigs to help off with them, and to gnaw the heads of the stumps. Some of the sugarloaves may have been planted out in the spring, and thus these thirty-eight perches will fit you to some time in September.

Now mind, in March, and again in April, sow more early Yorks, and treat them as before. Dig up the ground and manure it, and as fast as you cut cabbages, plant cabbages. Your last planting will be about the middle of August, with stout plants, and these will serve you into the month of November.

Now we have to provide from December to May inclusive; and that too out of this same piece of ground. In November then, must be arrived at perfection 3,000 turnip plants. These, without the greens, must weigh on an average five pounds, and this at eighty pounds a day, will keep the cow 187 days, and there are but 182 days in these six months. The greens will have helped out the latest cabbages to carry you through November, and perhaps into December. But

for these six months, you must depend on nothing but the Swedish turnips.

And now, how are these to be had on the same ground that bears the cabbages?-that we are going to see. When you plant out your cabbages in the fall, put first a row of early Yorks, and then a row of sugarloaves, and so on throughout the piece-of course, as you are to use the early Yorks first, you will cut every other row; and the early Yorks that you are to plant in summer will go into the intervals. By and by, the sugarloaves are cut away, and in their places will come Swedish turnips, you digging and manuring the ground, as in the case of the cabbages, and at last you will find about sixteen perches where you will have found it too late and unnecessary besides, to plant any second crop of cabbages. Here the Swedish turnips will stand in rows at two feet apart (and always a foot apart in the row) and thus you will have 3000 turnips; and if these do not weigh five pounds each on an average, the fault must be in the seed or the management.

The Swedish turnips are raised in this manner. You will bear in mind the four perches of ground in which you have sowed and picked your cabbage plants.—The plants that will be left these will in April, serve you

In a part of these two perches you will infor greens. March and April, as before directed, have sown and raised your early Yorks for summer planting. in the last week of May prepare a quarter of a perch of this ground and sow it precisely as directed for the cabbage seed, with the Swedish turnip seed; and sow a quarter of a perch every three days, till you have sowed two perches.-If the fly appears, cover the rows in the day time with cabbage leaves, and take the leaves off at night: hae well between the plants, and when they are safe from the fly, thin them to four inches apart in the rows.—The two perches will give you nearly 5000 plants, which is 2000 more than you will want. From this bed you draw your plants to transplant in. the ground in which the cabbages have stood as before directed.—You should transplant none much before the middle of July, and not much later than the middle of August. In the two perches where you take your turnip plants, you may leave plants to come to perfection at two feet distance each way; and this will give you over and above 840 pounds of turnips; for the other two square perches will be ground enough for you to sow your cabbage plants in to the end of July or first of August, as directed for last year."

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After observing that the turnips must be transplanted in the same way that the cabbage plants are, and that both ought to be transplanted in dry weather, and in ground just fresh digged, Mr. Cobbett gives some excellent directions for harvesting and preserving the Swedes, preventing the milk having an ill taste (which is chiefly to attend to cleanliness in the utensils), and other matters which it may be well to refer to in his book.

The plan here so fully laid down is deserving the attention of those who are introducing the allotment system on their estates. It is said that the Marquis of Lansdown has appropriated 500 acres to be divided amongst 700 poor cottagers for this purpose. Other landed proprietors are also commencing the same system to a large extent. It is possible that the quantity of land named, forty perches, may be somewhat less than will be required; and it may be no easy matter to follow out the directions given in all their minute particulars, yet when it is admitted that a system is admirable in itself, in its nature and effects, any approach to it will be praise worthy, and in the end the attempt made may be successful. In Mr. Blacker's work different plans are given for effecting the object. There is one

of Mr. Allen's, taken from "Colonies at Home," that requires half an aere for the keep of a cow. Even supposing that it will take a whole acre for that purpose, an immense gain would be made, when compared with the present method which requires two or three acres, and which, being in grass land, is generally kept in miserable order, most of the dung being taken to the garden, the grass land being thus left without its proper share, consequently the place becomes poorer every year, until it is made so totally unproductive, that the occupier is obliged to quit his possession.

Mr. Blacker considers that the tenants, if left to themselves, would never carry out the plan mentioned to advantage. He therefore says (p. 20), "I have thought it better to obtain the assistance of an experienced farmer, who will call upon you for the purpose of personally inspecting your farms, and giving instructions suitable to the nature and condition of each, not only as to the rotation of crops, but also as to the mode of preparing the ground and putting them in, which accurate information, I am of opinion, nothing but personal inspection can supply." In removing some of the difficulties here alluded to, it might be of further advantage to have a model allotment farm, occupied by some

intelligent manager, in a central position, which might serve as a guide to others. The person occupying it might be employed to visit the different allotments at certain periods, to point out what was required to be done, and to see that this was punctually complied with. There is always a risk of a new experiment miscarrying, not from any defect in its principle but from some imperfection in the executive part.

Unless some such plan, as has been here prescribed. be adopted, it is very clear that cottage property can never bring in any return of rent. Repairs and outgoings will swallow up the whole of the receipts. It has been a great misfortune to this part of the country, both as a residence and a profitable investment, that the cottage system should ever have prevailed in the way it has done. At the time when handloom weaving was at its height, whole rows of miserable houses were built, which often let for more than £10. a year a piece. These were filled with families for the sake of the enormous profit that accrued from them.—A great part of them are now either unoccupied or in a ruinous condition.-The inmates, if any, only bear marks of poverty and wretchedness. The pauper population has been going on increasing to such a degree that in the Preston Union,

in 1842, one sixth of the whole were paupers; the return for six years being as follows:

NU	MBER OF PAUL	ERS. Cost.	
In 1837,	2576	£11,347	
1838,	4451	10,300	
1839,	5425	13,852	Furniture, &c., included.
1840,	7226	13,484	
1841,	8672	15,180	
1842,	13,237	24,516	
Sep.2, 1842,	14,443	25,908	

This shows the enormous increase in six years of 11,867 paupers, and £14,561. increase in cost. In this appalling statement it may be added, that a large part of the paupers are shut up in workhouses, without the fear of God or man before their eyes; the able bodied separated from their wives and families, without religious worship, without moral or religious training, without virtuous habits, without industrious pursuits. Where the consequences to be apprehended are so fearful, it becomes the philanthropist as well as the political economist, to promote some plan of public utility, that can at all arrest an evil of so great a magnitude. The increased poor rates may no doubt in some measure be attributed to the badness of the times, but where they

have been going on increasing in so progressive a manner, there must be some more deeply seated cause. In looking for a remedy, what is there so well adopted to the growing wants of a population already too large, increasing advancing and going on, and so rapidly, as to teach them to rely on their own resources, and afford them the means of doing this in a way that will be a lasting benefit to themselves. This the allotment system is calculated to effect; and if it be wisely administered, it may yet be the means of restoring things to a more healthy state, of alleviating human suffering, and raising the country to its wonted strength and prosperity.

Heavy taxation and the present depression of the prices of farming produce are no doubt great drawbacks to agricultural improvement. Without admitting the truth of the appellation, vis:—our being a nation of shopkeepers, we cannot deny that manufactures with their attendant burthens and predominating influences have retarded the more improved cultivation of the land. There is a large tract of country, in the extensive district of the Fylde, chiefly belonging to Mr. Clifton, which is different from most other in this county; and which is capable of being managed on good farming principles as most in the kingdom. It consists of a deep

and rich soil, which lying close adjoining to the sea and the river Ribble, has been principally one of those alluvial formations, which so strongly contain within themselves the latent properties of production. trade has never yet extended itself amongst the inhabitants of this district, it has not yet been cut up into small holdings, nor is it to be seen swarming with a pauper population, as in many other parts. The property had been long neglected owing to an absentee landlord, which is the greatest misfortune that can befall a neighbourhood; the almost necessary consequence of such an absence is the mismanagement of the property by those, who have been entrusted with it. These evils have now been greatly removed by the attention of a resident proprietor, who conducting his improvements on a large scale, and being ably seconded by his active and intelligent agent has already succeeded in bringing about a better order of things. It may here be of use to mention what has been done, in a few instances, towards forwarding the important objects in view.

The first step taken was the establishment of an Agricultural Society at Lytham. The premiums given were confined to the tenants belonging to the estate,

who were to be seen vieing with each other in an amicable contest with a zeal and alacrity that did them the greatest credit, and which has been attended with much good. Each year the stock exhibited has gone on improving; and such is the anxiety displayed to move forwards and prosper, that some of the principal tenants have joined together to purchase a bull from Northumberland, for the sum of 100 guineas, for the purpose of improving the breed of the country. The green crop system, which before was scarcely known, is now plentifully practised. A large demand is consequently made on the contents of the farm yard. This might prejudice the general improvement of the land, if it were not that it had been accompanied by a further good practice, that of keeping the cattle within doors, the neglect of which has so long been the bane of Lancashire farming. By the attendance of different scient tific and practical improvers, often from a distance, at the meeting of the Society, knowledge has been more generally diffused and errors corrected. The discussions that are provoked at these meetings not only tend to the enlargement of the mind and to the introduction of new methods of husbandry, but they serve to stimulate zeal and emulation. The sight itself is of an animating description, when we behold a large landed proprietor surrounded by and presiding over his tenants, both uniting to promote an object of great private and public utility. By bettering the condition of the land, the occupiers of it find their benefit in the improvement of their own circumstances, and by its elevating them to a higher position in society; whilst at the same time a laudable spirit is excited, which may communicate a kindred feeling to other districts more remote.

The next work performed was the making a large cut to carry off the water that collected on the higher ground, and inundated a great part of the country. This cut extended from five to six miles, and was made at an expense of about £3000. entirely by the proprietor. If laying land dry be the basis of all improvement, so nothing can be so prejudicial or destructive of any systematic plan of operations, as for land to be liable to sudden overflows. So long as the hopes of the husbandman are in danger of being thus marred, and he is not sure of reaping the crop he has sown, it is in vain to expect that he will engage in any arduous undertaking. But if a good outlet be required to prevent inundation, still more is it wanted for carrying off surface water. Unless there is a ready and quick passage off for this, it is

useless to commence draining. At Lytham especially, where there is no substratum of clay in the soil, it is still more necessary to have the drains kept open by a continued run through them, or they will else be very soon choked up. As a proof of the benefit resulting from the undertaking, offers were made, immediately on the completion of the work, of an increased rent, that would help towards bringing an adequate return for the outlay expended.

A beginning has also been made towards a better system of leasing. It has already been stated that the usual term in this country is about seven years, and that our class of farmers being deficient in most of the requisite qualifications for good farming will not admit of a longer term being granted, either with advantage to themselves or their landlords. To obviate this. recourse has been had to Scotland. Three substantial and intelligent farmers from thence have been induced to enter upon farms on the estate at Lytham, of about 250 acres each, at a nineteen years lease. These have already commenced their operations on a large scale; and have begun draining with tiles to a great extent, the landlord finding the material, the tenant the work. This is supposed to be the first instance in this county. where a trial has been made of bringing about an ameliorating system by giving such a length of term as is required for so important an undertaking.

The property near Lytham is likewise in a fair way of being much increased in value by the works carrying on in the river Ribble. The channel was formerly constantly shifting its course, and in such different winding directions, that it was extremely bad for navigation, and of great injury to the land adjoining it, by the frequent inroads it made. Under the direction of the able engineer from Edinburgh, Mr. Stephenson, a plan has now been adopted which seems likely to be attended with complete success. Two parallel walls have been carried down the river from the Preston quay about six miles, leaving a space betwixt them of about 100 yards in width, through which the channel is conveyed. The direction of the channel has become perfectly straight; and by a greater scouring power having been given to it, and being acted upon also by the dredging machine, it is so deepened, that vessels can come up of considerable burthen, which before were obliged to unship their cargoes below, and have them brought up in lighters. The sands are now collecting on each side, and are rising

to such a height, that, in a few years, there is every prospect of a large tract of valuable land being reclaimed. An Act of Parliament was obtained in 1838, which empowered the raising of 50,000 in shares for improving the navigation of the river Ribble. This sum has been now nearly expended, but the works are almost finished, and the results arising from them are important and satisfactory. Preston has lately been made a free port by the government, and as it possesses facilities of communication, both abroad and inland, superior to most other situations, there is every reason to expect, that on the revival of trade, it will become one of the greatest commercial and manufacturing towns in the kingdom. Lytham is likely to derive much benefit, in different ways, from the increasing prosperity of Preston. A dock having been made for the use of vessels lying there, it will become a depot from whence goods may be shipped off to foreign parts. The place itself is highly flourishing, and has been much embellished of late years, under the liberal patronage of its presiding genius. For the great neatness it displays, and the good taste exhibited in the architectural ornaments of its buildings, it is to be surpassed by few places of public resort in the kingdom. Its marine situation, with its mild and salubrious air, has many attractions to those who are insearch of sea breezes for the sake of health; or to the lovers of change and variety in a luxurious and wealthy community.

The principal object, in thus noticing the different objects that have been going forwards on the Lytham property, is to show what may be effected by a judicious combination of skill and labour; or, as it is termed in the motto of the Journal of the Royal Agriculturali Society, of "practice with science," A fine field is here open for the exercise of talent; a noble estate lying well together, and offering great capabilities from a rich soil of an excellent quality, suited either for grain or grass crops. To develop its resources, to elicit its powers of production will require the application of all those modern discoveries which have of late years been explored and elaborated. Numerous facilities are within reach to aid in extracting the elements of fertility. which nature has scattered with profusion, but which have laid dormant in the earth, and been neutralized from inaction. The attempt is now made to redeempast errors. It may still take many years of persevering activity before any matured plan can be brought toanything like perfection. Much no doubt has been

done well and judiciously; but any competent judge of good farming will fairly admit, that much remains still to be done. Like the rest of this county, where a really good grass field, if it be to be met with at all, is a phenomenon of rare occurrence, there are to be seen about Lytham large tracts of pasture land quite in an unreclaimed state. These would have to be broken up. thoroughly worked, well manured and then laid down again in a proper manner with a good selection of grasses, before any permanent improvement can be effected upon them. If by acting upon this great scheme of renovation an approach be made towards introducing amongst us a more improved system, if, taking as a model, the agriculture of more advanced districts, other parts of this county will follow the example so laudably set them, there may yet be a chance of our being elevated to a higher station, as agriculturists, and being rescued from the stigma we have so long laboured under.

The inferiority of Lancashire farming to that of most other parts of the kingdom has not been here dwelt upon for the purpose of raising an invidious comparison, nor of depreciating efforts already laudably made; but rather to spur the country on to a higher range of generous rivalship. The first step to all improvement is to be made fully sensible of our own deficiencies. good can be expected so long as we remain puffed up with our own imagined superiority, or move round, in our own little circle, without venturing to go beyond The schoolmaster is said to be abroad. words are few, but they contain much meaning. Knowledge is spreading its lights far and wide, purifying morals, disciplining character, renovating old worn-out institutions, tending to diminish crime, and to extend the sphere of duties public and private. The enlarged exercise of the mind, which has done such wonders in modern discoveries, will give also an additional stimulus to agricultural invention and skill. Can a science, which is so valuable and indeed necessary to the happiness and well being of civilized society, stand still in this intellectual struggle? Can a process which is to bestow the means of subsistence on a suffering population, and to master foreign competition, lose its place amidst such an assemblage of virtues? Let schools be generally established. Government have already too long delayed bringing forward some general plan of national education. Private individuals have done much. To them be the praise that is justly their

There are but few of the old set of farmers who can either read or write. In most cases it is the fault either of themselves or their parents, if the children of the present day cannot do both. Yet this is only sowing the seeds of knowledge. Good fruit, before it can be brought to maturity, requires the tree to receive its proper training and direction and the culture necessary to give it its full growth and excellence. considerable landed proprietor, at very little expense to himself, may set on foot an agricultural library for the use of his tenants, may distribute tracts of this kind amongst them, or bestow them as premiums for good conduct and management. By this means, their minds, instead of lying waste and uncultivated, will undergoa fuller development, and will be raised to the enviable enjoyment of ease and independence. This it is that will elevate the low condition of the agricultural classes to a higher standard. A wide field is before us,-a field now choked up with tares and brambles, but which may yet bring forth the noblest fruits. Direction and encouragement are the main conductors to success. Lord Spencer in an excellent paper on the improvements of West Norfolk, in the Royal Agricultural Society's Journal, has shown in a manner that would convince

the most sceptical, how this great end is to be attained by the union of talent and activity. Mr. Coke, afterwards Earl of Leicester, when he came into possession of his property, then an extremely young man, offered a large farm of his, just by Holkam, to the tenant, who had held it, at an increase from 3s. 6d. per acre to 5s. This the man declined, and on his refusal he took it into his own hands. By a judicious course of management, and a variety of new tried experiments he brought this, which was a poor hungry soil, into the highest order. "Thus the real origin of the improvement of this district was, that Mr. Brett, refused to give 5s. an acre for land, which now under an improved system of cultivation usually produces nearly four quarters of wheat per acre." An authority not to be doubted has stated, that when Mr. Coke came into possession of his estate, it was only worth about £12,000. a year, and afterwards in the high times it brought in more than £30,000. May it not be asked whether many of the landowners in this county could not do much the same thing? It will at all events be admitted that an enormous increase might be made of the produce grown. The only equivalent of low prices is an increase of production. In this the landlord is equally interested with the tenant. It is yet to be hoped

that the landed proprietors of this great county setting a praiseworthy example of improvement upon their estates, and bringing into activity the illumination of agricultural science, will disperse the clouds of darkness hanging over our present farming system. By such efforts they will ameliorate the condition of a depressed but deserving class of people, confer blessings on countless thousands of mankind, and "scatter plenty o'er a smiling land."

THOMSON, PRINTER, PRESTON.

Errata.

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PAGE.	LINE.
ii.	9 for Gelloly's read Yelloly's
12	16 for Rosere read Roscow
13	12 for cost read cast
20	3 for was 15 miles read which was 15 miles
27	6 for choaked read checked
47	9 for on the furrow read in the furrow
55	23 for tiles read turves
56	19 for stoney read strong
62	10 for grass read green
65	16 after further read gutter
71	19 for Gelloly read Yelloly
86	3 for argoriculture read arboriculture
95	5 for another read a mother
96	2 for ame read same
112	4 for 50,000. read £50,000.

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